THE IRON TRADE REVIEW

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Great Consumption of Iron and Steel Products

Overshadows Weakness in Coke and Old Material—
Heavy Orders Placed by Harriman and Pennsylvania Lines

Positive evidence of continuance of heavy consumption of pig iron and finished materials transcends in importance the weakness of the market on some products, particularly on coke, southern pig iron and scrap. The mills report that during the past week consumers have been unusually insistent upon deliveries. This is perhaps due to the feeling among some buyers that on account of reports of easier conditions, they ought to obtain deliveries with greater promptness. Occasionally, somewhat improved deliveries are reported, but for the most part, the mills are having much difficulty in keeping up with their promises.

Crude Steel

An important contract for a very large tonnage of sheet bars has been made with a Canton, O., concern by an independent steel company. The contract provides for payment based on the price of Bessemer pig iron and deliveries cover a long period. Transactions closed in the Pittsburgh district for billets and sheet bars indicate an advancing market. Leading consumers in that district have had great difficulty in placing orders.

Wire

Existing reports of an advance in wire prices by some of the independent wire companies have not been confirmed. Some of the independents have, during the past few months, lost considerable business to the leading interest, which has pursued a very conservative price policy, and it is not likely that there will be any general advance in wire products in the near future.

Railroad Buying

One of the most encouraging indications of the soundness of present conditions is the continued heavy buying of railroads. There is also a confident expectation that there will be no suspension of railroad orders already booked, and these orders alone would almost insure activity of many plants throughout the year. The distribution of the large Harriman order, calling for 13,300 cars of various descriptions, has been made, the Pullman Co. getting 5,000 box and stock cars, the Pressed Steel Car Co. 2,700 gondola, hopper and tank cars, the American Car & Foundry Co. 2,300 box cars, the Standard Steel Car Co. 2,000 box and automobile cars and cabooses, and the Bettendorf Axle Co. 1,300 work and flat cars. The Pennsylvania railroad has distributed orders for 12,300 cars as follows: The Cambria Steel Co., 4,500 hopper coke cars; the Pressed Steel Car Co., 2,500 hopper coke cars; the American Car & Foundry Co., 500 gondola and 1,500 refrigerator cars; the Standard Steel Car Co., 1,500 coke hopper cars and 805 gondolas; the Ralston Steel Car Co., 500 gondolas; the Western Car & Foundry Co., 500 gondolas. The total order will call for about 300,000 tons of steel. The Norfolk & Western is seeking material for about 6,500 additional cars, to be built in its own works, and also for 6,500 tons of bridge material. It is understood that this road has arranged for material for about 2,000 of these cars with Pittsburgh mills. The Carnegie Steel Co. will require six months to roll open-hearth steel rail sections, contracts for which have been specified, while specifications on hand for Bessemer rails will keep the Carnegie mills busy for at least three months.

Pig Iron

The southern pig iron market continues to be the weakest spot in the country. In other sections of the country, reports indicate that foundries are not only taking their iron on contract, but are often requesting anticipation of shipments, but a few melters of southern iron are asking for suspension of shipments. There is very little activity in pig iron throughout the central west and prices for the most part are well maintained.

New Ships

The Cramp ship yards will build two large passenger and freight steamers for a new steamship line, to be operated through the Panama canal. About 15,000 tons of steel will be required. Three car ferries to be built by the Great Lakes Engineering Works for the Grand Rapids & Northwestern Railway Co. will require 9,000 tons of steel. The Cambria Steel Co. has taken 15,000 tons of shapes and plates from the Newport News Steamboat & Dry Dock Co.

Coke

Coke prices have continued to sag and $2.50 is now the ruling quotation for prompt delivery furnace fuel, while little, if any, more is obtained on contracts. Foundry coke has also declined, but not as sharply as the furnace grades. The feeling in the trade is that the recent high prices were not justified and that the present quotations are reasonable. Old material is also weak, with quotations still tending downward.

CONTRACT OBLIGATIONS

Discussed by President Farrell Before Hardware Association.

New York, Feb. 12. (By wire.)—President Farrell, of the Steel Corporation, in an address before the New England Iron and Hardware Association, stated that the question of contract obligations between buyers and sellers in the iron and steel trade is in a fair way to finally be settled. "The American Iron and Steel Institute has appointed a committee to compile a uniform sales contract, fair alike to buyers and sellers, which will recognize the obligations of each in hope of establishing the integrity of contract prices," said Mr. Farrell. "It is believed that with the co-operation of all concerned, manufacturers, jobbers and consumers, so long as neither buyer nor seller is at a disadvantage with respect to competitors, fair treatment being observed between all alike and obligations of buyers and sellers being clearly defined and mutually understood, it will be a source of satisfaction to makers, jobbers and consumers that all provisions of contracts shall be inviolable and, saving for unavoidable causes, contracts will be executed and completed in good faith by both parties."

LARGE INCREASE

Shown by American Steel Foundries in Net Earnings.

The report of the American Steel Foundries for the year ended Dec. 31, 1912, shows an increase in net earnings of $1,415,484, to $1,543,838. Deducting charges there was a surplus of $777,756, equal to 4.52 per cent. The income account follows:

Quarter ended Dec. 31:	1912.	Increase.
*Net earnings	$555,776	$518,503
Other income	16,140	11,564
Total income	$571,916	$531,067
Charges, etc.	123,476	289
Depreciation	94,948	35,387
Surplus	$353,491	$495,390
Year ended Dec. 31:		
Net earnings	$1,543,838	$1,415,484
Other income	44,927	5,474
Total income	$1,588,766	$1,420,959
Charges, etc.	488,503	5,005
Depreciation	322,507	123,396
Surplus	$777,756	$1,292,558

*After deducting manufacturing, selling and administrative expenses.

POSTPONE HEARINGS

New Evidence to be Studied in Steel Corporation Case.

New York, Feb. 11.—The hearings in the suit by the government for the dissolution of the United States Steel Corporation were not resumed Monday, as was expected, and it is now probable that no further witnesses will be examined before Feb. 25. This postponement is due to the fact that certain important documentary evidence has just come into the hands of the government attorneys and the latter propose to examine this thoroughly before proceeding any further. The nature of this evidence was not disclosed by the government attorneys, who would say only that it consisted of a number of bulky volumes containing records of certain transactions in which the Steel Corporation and its subsidiary companies took part at various times. The government up until this time has made no definite announcement regarding the witnesses to be examined when the dissolution hearing is resumed.

Enthusiatic Tribute to Drew—Praise for Burns—All "Higher Ups" Have Been Punished

By J. D. Fredericks,

United States District Attorney, who prosecuted the dynamiters at Los Angeles.

Los Angeles, Cal., Feb. 10. (By wire.)—Replying to your request for a statement in regard to the controversy between Walter Drew and W. J. Burns, I regret very much that such a controversy should have arisen. I am not familiar with the statement Mr. Burns was alleged to have made. Both Mr. Burns and Mr. Drew are good men, capable and energetic. I think both are honest and faithful in their undertaking, and there should be no reason for controversy between them. I became personally acquainted with both Burns and Drew at the same time and in the same manner.

Mr. Burns is a skillful detective, trained along a line that I understand thoroughly. A detective cannot pursue one line of work all his life without becoming affected by that line of activity, any more than a preacher, a lawyer and banker or any other. I would have to hear Mr. Burns say that he called Mr. Drew a crook or referred disparagingly to his, Drew's, character, before I would believe that he had said it.

Walter Drew is not a crook, but is a gentleman of high esteem and attainments, with high ideals and ideas, indomitable and indefatigable in his work. Anyone who has associated with him must know this. We found it necessary in preparing the McNamara case, which was practically the entire general conspiracy, to call on Mr. Drew many times for information, and we found him always perfectly fair, even towards those who had done so much damage to the institution employing him.

I am entirely familiar with every detail, even the most minute, in this entire case. All of the "higher ups" have been punished, against whom there was any evidence obtainable. The work was done entirely by the United States and state authorities. Neither the National Erectors' Association nor Burns was permitted to direct, manipulate or suggest. They were as powerless to interfere with our work as were the many organizations which were prosecuting.

Los Angeles city and county employed Burns. He did good work and was well paid for it.

J. D. Fredericks, *District Attorney.*

THREE CARFERRIES

Ordered From The Great Lakes Engineering Works.

The Great Lakes Engineering Works has booked an order for three steel car ferries, which, with the exception of the Ann Arbor No. 5, will be the largest on the great lakes. They will be built for the Grand Rapids & Northwestern Railway Co., will cost approximately $1,500,000 and about 9,000 tons of steel will be required. They are to be completed for delivery before the close of navigation this fall, will have a length of 350 feet, beam 56 feet, depth from keel to spar deck 38 feet. They will be operated between Ludington, Mich., and Milwaukee and Manitowoc, Wis., and have a capacity for carrying 30 standard size cars.

Receivers for Milliken Bros.

New York, Feb. 12. (By wire.)—An involuntary petition in bankruptcy was filed here yesterday against Milliken Bros., Inc., fabricators, by creditors, alleging default in sinking fund installment. Francis Dykes, general manager, and Forsyth Wickes, were appointed receivers, and were authorized to continue business for 60 days. Creditors assert that liabilities are $7,000,000 and assets $4,000,000. This is the second time the firm has been in bankruptcy.

MAY BE CONSOLIDATED

Negotiate Merger of Sheet and Tin Plate Mills.

Negotiations have been in progress for some weeks for a combination of independent sheet and tin plate mills which will embrace a number of the important plants in the Pittsburgh territory. The latest information is that the outlook for success in effecting the consolidation is more encouraging than it was. The names of the companies usually mentioned in this connection are La Belle Iron Works, Steubenville, O.; the McKeesport Tin Plate Co., McKeesport, Pa.; the Phillips Sheet & Tin Plate Co., Charlesburg and Wierton, W. Va.; the Osterberg Tin Plate Co., Waynesburg, Pa.; the Washington Tin Plate Co., Workington, Pa.; the Alcania Co., Avonmore, Pa., and one or two other smaller sheet and tin plate plants in the Pittsburgh district.

WANTS MILL OPENED

Chamber of Commerce Sends Resolution to Judge Gary.

Birmingham, Ala., Feb. 11.—At a meeting of the board of directors of the Birmingham Chamber of Commerce, a few days ago, resolutions were introduced and adopted by an unanimous vote to urge Judge E. H. Gary, chairman of the United States Steel Corporation, to take steps to put the wire and rod mill at Corey, Ala., in operation. Following the preamble the resolution continues:

"Resolved, that the Chamber of Commerce, of Birmingham, memorializes the United States Steel Corporation to justify the faith and confidence we have manifested in the honesty of their purpose in acquiring control of the Tennessee Coal, Iron & Railroad Co. by at once equipping the wire and rod mill with machinery and putting same in operation without unnecessary delay; and that the president of the chamber of commerce is hereby instructed to transmit a copy of this memorial to Chairman E. H. Gary for consideration by his executive board."

Drew a Man of Highest Character—What Erectors' Association Did Not Do

By Oscar Lawler,

Assistant to United States District Attorney in prosecuting dynamiters at Los Angeles.

Los Angeles, Cal., Feb. 10. (By wire.)—Your night letter of Feb. 8. No person connected with the dynamite cases was, to my knowledge, actuated by a desire to get any particular person higher up, or otherwise, or by any purpose other than to ascertain the truth and proceed against those whose indictment was justified thereby. A prosecution otherwise inspired would have been unworthy and dishonorable. By no act or suggestion coming to my notice did the National Erectors' Association impede, interfere with or frustrate any investigation. Quite to the contrary, Walter Drew I consider and cheerfully vouch for as a man of the highest character and most unimpeachable integrity. He could doubtless satisfactorily answer any reflections sufficiently specific to warrant reply. Law and order have attained a signal victory and I will not cloud the result by joining in any petty controversy over the division of the glory.

Oscar Lawler.

Drew Did All in His Power to Aid the Government

By Chas. W. Miller,

United States District Attorney, who prosecuted the dynamiters at Indianapolis.

Chicago, Feb. 11. (By wire.)—Your telegram received. Walter Drew did everything in his power to properly aid the government in the investigation and prosecution of the dynamite conspiracy case recently concluded at Indianapolis. I do not know why unjust charges should be made against him by anyone. Mr. Drew is a lawyer of ability and a gentleman of integrity. I have no hesitancy in saying that he never attempted to shield any man that was guilty, but on the contrary, he presented all the facts that he could in any way obtain that pointed to the violation of the laws of the United States.

Chas. W. Miller.

PITTSBURGH

Many Car Orders Placed and Pending

Office of THE IRON TRADE REVIEW,
2148-49 Oliver Bldg., Feb. 11.

Specifications the first 11 days of this month for finished lines of iron and steel products were heavier than those of the corresponding period a month ago. Despite pessimistic expressions heard in the trade the last few weeks, officials of leading industries in this district declare that the market never was on a more substantial basis. The coke and scrap markets show signs of a decided slump, and yet coke today is selling at what might be considered a good normal figure. The pig iron market is extremely quiet, and because of the inactivity it is not at all improbable that some furnaces will shade prevailing quotations in order to add back log tonnage to their books.

It is estimated that more than 40,000 cars are involved in pending inquiries and fully 1,000,000 tons of structural material are included in negotiations for new buildings, plants, plant extensions, etc.

Pig Iron.—The Colonial Steel Co., this city, today closed for 1,500 tons of basic pig iron for March delivery. Aside from this tonnage the company inquired for from 1,000 to 1,500 tons for April, May and June shipment, but did not buy more than requirements for March. The purchaser has made no official statement relative to the price paid, but it is known that at least two dealers who quoted $16.35, valley, did not receive the contract. These offers were made, not because of any weakness, but rather because of the quiet period that has extended over almost two months, which enabled some to accumulate slight surpluses. We quote basic at $16.35 to $16.50, valley. There has been no demand for other grades, and although it is claimed foundry has sold at less than the prevailing market, there has not been enough new tonnage moved to give any insight into this branch. Expressions are heard to the effect that the prevailing quietness is mistaken for weakness. We quote all grades for first half delivery as follows:

(First Half.)

Bessemer, valley	$17.25 to 17.50
Bessemer, Pittsburgh	18.15 to 18.40
Basic, valley	16.35 to 16.50
Basic, Pittsburgh	17.25 to 17.40
No. 2 foundry, valley	17.50
No. 2 foundry, Pittsburgh	18.40
Malleable, valley	17.25 to 17.50
Malleable, Pittsburgh	18.15 to 18.40
Gray forge, valley	16.25 to 16.50
Gray forge, Pittsburgh	17.15 to 17.40

Ferro-Alloys.—The market for ferro-manganese and ferro-silicon is quiet and no sales of any consequence have been made for several weeks. It is evident that the former alloy is not selling above $65, seaboard. For either prompt or forward shipment 50 per cent ferro-silicon continues to be quoted at $75, Pittsburgh.

We quote 80 per cent ferro-manganese at $65, Baltimore, for prompt delivery and $65 for forward shipment. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $75, Pittsburgh, for prompt and forward delivery; 12 to 13 per cent, $25 to $26, 11 to 12 per cent, $24 to $25; 10 to 11 per cent, $23 to $24; 9 to 10 per cent, $22 to $23, f. o. b. Globe, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

On ferro-titanium we quote 8 cents per pound for carload lots; 10 cents per pound for 2,000 pound lots and over, and 12½ cents per pound in lots up to 2,000 pounds.

Plates.—The Pennsylvania railway has distributed orders for 12,305 cars. Those in close touch with car buying, estimate that pending inquiries include at least 40,000 cars of miscellaneous types. The Pennsylvania order was distributed as follows: The Cambria Steel Co., 3,000 hopper coke cars for lines east and 1,500 hopper coke cars for lines west; the Pressed Steel Car Co., 2,000 hopper coke cars for lines east and 500 box cars for lines west; the American Car & Foundry Co., 500 gondolas and 1,500 refrigerator cars for lines west; Standard Steel Car Co., 1,500 coke hopper cars and 805 gondolas for lines west; Ralston Steel Car Co., 500 gondolas for lines west; Western Car & Foundry Co., 500 gondolas for lines west. Cars will be of 100,000 pounds capacity. Hopper cars each require about 50,000 pounds of steel and gondolas, box and refrigerator cars each require about 40,000 pounds of steel, the total order involving 300,000 tons of steel. The Cambria Steel Co. has taken an order from the Berwind White Coal Mine Co. for 100 hoppers.

Bids on steel for the battleship Pennsylvania, involving 10,000 tons, exclusive of protective deck plate girders (4,500 tons), close Feb. 21. It develops that only 5,000 tons, instead of 22,000 tons, of plates, shapes and bars, etc., are required for the towers for the Cristobal-Balboa transmission line, an error having been made by the government. We quote as follows:

Standard steel plates ¼ inch thick, 6¼ to 100 inches, 1.45c to 1.60c for forward shipment and 1.65c to 1.90c for prompt shipment. For extras, see card of Sept. 1, 1909.

Sheets.—Reports from leading manufacturers of sheets in this district are especially encouraging regarding future conditions of the market. An official of one of the sheet mills this morning declared that prospects for an extended period of prosperity never were brighter than at the present time. Mills continue to receive orders for delivery after July 1, at prevailing quotations, and few interests are in a position to offer tonnages for delivery the first half of the year, except at premium prices.

Present indications are that specifications and new orders this month will exceed those of last, one of the best months in the history of the sheet trade. Consumers do not appear at all concerned regarding prices of material; their chief interest lies wholly in the question of deliveries. The fact that some of the large consumers are buying for needs after July 1, is taken to indicate that no reversal is expected to occur. We quote sheets for forward delivery as follows:

Flat Sheets

Black Sheets.—Nos. 10-12 gage, $2 per 100 pounds; Nos. 13-14 gage, $2.05; Nos. 15-16 gage, $2.10; Nos. 17-21 gage, $2.15; Nos. 22-24 gage, $2.20; Nos. 25-26 gage, $2.25; No. 27 gage, $2.30; No. 28 gage, $2.35; No. 29 gage, $2.40; No. 30 gage, $2.50.

Tin mill sizes, Nos. 15-16 gage, $2.10 per 100 pounds; Nos. 17-21 gage, $2.15; Nos. 22-24 gage, $2.20; Nos. 25-27 gage, $2.25; No. 28 gage, $2.30; Nos. 29-30 gage, $2.35; Nos. 30¼-31 gage, $2.40; No. 32 gage, $2.45.

Blue Annealed.—Nos. 3-8, $1.70 per 100 pounds; Nos. 9-10, $1.75; Nos. 11-12, $1.80; Nos. 13-14, $1.85; Nos. 15-16, $1.95.

Galvanized.

Nos. 10-11 gage, $2.50 per 100 pounds; Nos. 12-14 gage, $2.60; Nos. 15-16 gage, $2.75; Nos. 17-21 gage, $2.90; Nos. 22-24 gage, $3.05; Nos. 25-26 gage, $3.20; No. 27 gage,

$3.35; No. 28 gage, $3.50; No. 29 gage, $3.65; No. 30 gage, $3.80.

Roofing Sheets

Net extras on all gages per 100 pounds. Corrugated 2-inch, 2½-inch, 3-inch and 5-inch corrugation, 5c; 2 V crimped without sticks, 5c; corrugated 1¼-inch corrugation, 10c; 3 V crimped without sticks, 10c; pressed standing seam with cleats, 15c; plain roll roofing with or without cleats, 15c.

Painted Roofing.

12 to 18 gage, inc., 5c; 19 to 24 gage, inc., 10c; 25 to 28 gage, inc., 15c.

Tin Plate.—Inasmuch as consumers have covered 1913 needs, the tin plate market is quiet. Specifying continues at a heavy rate, and shipments are above normal. Talk of a consolidation of some of the leading independent tin plate manufacturers in western Pennsylvania, West Virginia and eastern Ohio is heard, but officials of companies involved advise that no definite action has been taken. In some quarters, it is said that the consolidation will fall through, while in others it is claimed that it will be effected within a few weeks. We quote tin plate as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburgh district.

Rails and Track Material.—The Carnegie Steel Co. advises that it will take six months to roll open-hearth steel sections, contracts for which actually have been specified against, and specifications for Bessemer rails involve at least three months' operation. Information of this kind is of particular interest at this time when doubt concerning the future is expressed in some quarters. Buying of equipment by railroads generally precede a period of economical and industrial prosperity. Traction line interests are buying, and orders for light rails are coming from mine and lumber camp interests. Rails are quoted as follows, with the base price of open-hearth steel sections at 1.34c per pound at the mill:

Fifty-pound and heavier, 1.25c per pound; carload and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, 1.25c, the schedule on the other weights being irregular and subject to negotiations; angle bars for standard sections, 1.50c, base, Pittsburgh; track bolts, 2.40c to 2.50c, base, Pittsburgh.

Railroad Spikes

4½, 5 and 5½ and 9-16	1.90c to 2.00c
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x 7-16	.20
3, 3½, 4 and 4½ x ⅜	.30
2½ x ⅜	.40
2½, 3 and 3½ x 5-16	.60
2 x 5-16	.80

Billets and Sheet Bars.—Although the semi-finished steel market continues quiet, several transactions have been closed during the past week or 10 days at about 50 cents a ton above the prices ruling a week ago. Bessemer billets have sold at $29, mill, and open-hearth billets and Bessemer sheet bars have brought as high as $29.50. Open-hearth sheet bars have sold at $31 and slightly above. Forging billets are quoted at $36. Some of the leading consumers in this vicinity have gone over the entire country in an effort to obtain semi-finished steel products, and report that there is practically no available material on hand. The following quotations represent the market as accurately as possible under existing conditions:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $29.00, with the usual rolling billets, $29.50. Bessemer sheet and tin bars are quoted at $29.50 and open-hearth sheet bars are quoted $30, f. o. b. Pittsburgh and Youngstown, with full freight to destination added. Forging billets are quoted at $36, Pittsburgh.

Hoops and Bands. — Specifications against contracts for hoops and bands continue at a heavy rate, and shipments are badly deferred. Bands are quoted at a range from 1.40c to 1.45c, and hoops at a spread from 1.60c to 1.70c, for forward delivery. What was said in reference to the cotton tie situation on page 295 of the Jan. 30 issue of THE IRON TRADE REVIEW applies particularly to conditions in this district. The situation has not changed this month. Quotations are:

Hoops in carload lots, 1.60c to 1.70c, Pittsburgh, in less than carload lots, 1.65c to 1.75c; bands, 1.40c to 1.45c, base, with net extras, as per standard steel.

Merchant Bars. — Several manufacturers of steel bars state that specifications this month are considerably in excess of those of the first 11 days of January, and bar manufacturers, as a rule, are extremely optimistic regarding the future market. Some mills have sold their entire output through the year, while others are declining to quote beyond July 1. Little or no tonnage for forward delivery is being sold above 1.40c, which quotation has been in effect for several months.

Manufacturers of iron bars advise that new demand has not fallen off and that specifying continues liberal. Iron bars are quoted at a range from 1.70c to 1.80c for future delivery. Specifications against contracts for cold rolled shafting continue heavy, although there is not much new demand. Shafting is quoted at 58 per cent off for carload lots and 53 per cent off for less than carload lots. We quote as follows:

Common iron bars, 1.70c to 1.80c, Pittsburgh; Bessemer and open-hearth steel bars, 1.40c to 1.45c; plow and cultivator 1.40c to 1.45c; channels, angles, zees, tees, under 3 inch, 1.50c to 1.55c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds and not less than 1,000 pounds of a size, 0.15 advance, less than 1,000 pounds of a size, 0.35. Cold rolled and ground shafting, 58 per cent off in carloads and 53 per cent in less than carloads delivered in base territory.

Bolts, Nuts and Rivets.—Although it is reported that quotations in the west are being shaded in some instances, bolt and nut manufacturers in this district are maintaining present prices in every particular. Demand continues rather heavy, and shipments are deferred two or three months. No changes in quotations are noted. Prices are:

Rivets

Button head structural rivets, 2.20c, cone head boiler rivets, 2.30c. Small rivets 75, 10 and 10 off.

Bolt and Nut Discounts.

Carriage bolts, ⅜ x 6 inches, smaller and shorter, rolled threads, 75 and 10; cut threads 75 and 5; larger and longer, 70 and 2½.

Machine bolts with hot pressed nuts, ⅜ x 4 inches, smaller and shorter, rolled 75, 10, and 5; cut, 75 and 10; larger and longer, 70 and 7½.

Gimlet and cone point lag or coach screws, 80 and 10.

Hot pressed square, blank or tapped nuts, $5.70 off list; hot pressed hexagon blank or tapped, $6.30.

Cold pressed C. & T. square, blank or tapped, $5.70 off; hexagon, blank or tapped, ⅝-inch and larger, $6.60 off; ½-inch and smaller, $7.20 off.

Structural Shapes. — Pending structural contracts, including inquiries for cars, involve more than 1,500,000 tons of material. Important projects are being undertaken in all parts of the country, and at the rate contracts have been placed the past five or six weeks, fabricators soon will have enough tonnage on their books to necessitate maximum operation through the entire year.

The Cambria Steel Co. has taken 15,000 tons of shapes and plates for the Newport News Ship Building & Dry Dock Co., to be shipped the next six months. The McClintic-Marshall Construction Co. has taken 910 tons for the municipal lighting plant, Cleveland, 135 x 157 feet, to be built at the foot of East Fifty-fourth street. The Noelke-Richards Construction Co., Indianapolis, has taken 1,600 tons for the Reibold 11-story office building, Dayton, O. The Jones & Laughlin Steel Co. has taken 800 tons for an extension to the National Lead Co.'s Jewett Works, New York City, 300 tons for the Carpenter Memorial Library, Manchester, N. H., and is building six 200-foot steel barges, each involving 150 tons, for the Vesta Coal Co., a subsidiary organization.

Inquiries include 1,000 tons of miscellaneous material for pier No. 17 for the Balboa docks, Isthmus of Panama, bids for which close Feb. 20; 800 tons for a building for the Otis Elevator Co. at Buffalo; 100 tons for a bridge to be built at West Etna, Pa. Reports to the effect that the Aluminum Co. of America will build a $1,500,000 plant at New Kensington, Pa., were unfounded.

The company is not considering plans for a plant in that vicinity at this time. Quotations, which are unchanged, follow:

Standard structural shapes, 1.45c to 1.60c for forward shipment. For extras see card of Sept. 1, 1909.

Merchant Pipe.—Iron and steel pipe manufacturers continue to receive excellent orders, and a number of important inquiries now are pending in this district. Reports concerning 180 miles of 12-inch pipe are conflicting. Although it is claimed that this order has been placed, it is impossible to verify this report. It is understood that additional pipe will be purchased by both the Philadelphia Co. and the interest that closed negotiations for a heavy tonnage of pipe for shipment to the northwestern part of Canada, mentioned in the Feb. 6 issue of THE IRON TRADE REVIEW.

Talk of an advance in the price of steel pipe continues to be heard, although no official changes in discounts have been made. Iron and steel pipe to jobbers, with the usual preferential discount to the large buyer, are quoted as follows:

Iron and Steel Pipe Basing Prices

STEEL.

	Black. Butt.	Galv. Butt.	Black. Lap.	Galv. Lap.
⅛, ¼ and ⅜ inch..	73	52½	..	..
½ inch	77	66½	..	..
¼ to 3 inch	80	71½	..	..
2 inch	..	..	77	68½
2½ to 6 inch	..	..	79	70½
7 to 12 inch.....	..	..	76	65½
13 to 15 inch	..	..	53	..

Extra Strong Plain Ends, Card Weight.

⅛, ¼ and ⅜ inch..	68	57½	..	..
½ inch	73	66½	..	..
¾ to 1½ inch	77	70½	..	..
2 to 3 inch	78	71½	..	....
2 inch	..	..	74	65½
2½ to 4 inch.....	..	..	76	67½
4½ to 6 inch	..	..	75	66½
7 to 8 inch	..	..	68	57½
9 to 12 inch	..	..	63	52½

Double Extra Strong Plain Ends, Card Weight.

½ inch	63	56½	..	..
¾ to 1½ inch	66	59½	..	..
2 to 2½ inch	68	61½	..	..
2 inch	..	..	64	57½
2½ to 4 inch	..	..	66	59½
4½ to 6 inch	..	..	65	58½
7 to 8 inch	..	..	58	47½

IRON.

⅜ inch	66	47	..	..
½ inch	70	57	..	..
¾ to 2½ inch.....	73	62	..	..
2 inch	..	..	69	59
2½ to 6 inch.....	..	..	71	62
7 to 12 inch.....	..	..	69	56

Extra Strong Plain Ends, Card Weight.

¼ inch	64	53	..	..
½ inch	68	61	..	..
¾ to 1½ inch.....	72	63	..	..
2 and 2½ inch.....	73	64	..	..
2 inch	..	..	67	59
2½ to 4 inch.....	..	..	71	62
4½ to 6 inch.....	..	..	70	61
7 to 8 inch.....	..	..	64	54
9 to 12 inch	..	..	59	48

Double Extra Strong Plain Ends, Card Weight.

½ inch	58	50	..	..
¾ to 1½ inch.....	61	53	..	..
2 and 2½ inch.....	63	55	..	..
2 inch	..	..	56	50
2½ to 4 inch.....	..	..	61	55
4½ to 6 inch.....	..	..	60	54
7 and 8 inch.....	..	..	53	43

Plugged and reamed pipe is furnished at 2 points higher price either butt or lap weld.

The above discounts are for full weight pipe, subject to a variation of 5 per cent, merchant pipe, when specified, being furnished up to 6 inches at one point higher discount (lower price).

Boiler Tubes.—Specifications against contracts for iron and steel boiler tubes continue heavy. Steel boiler tube discounts that went into effect Feb. 1 are being established without difficulty. Discounts follow:

IRON AND STEEL BOILER TUBES BASING PRICES.

(To Jobbers.)

	Steel.	Iron.
1¼ to 2 inch.....	60	48
2¼ inch	57	44
2½ and 2¾ inch.....	63	53
3 and 3½ inch.....	68	55
3½ to 4½ inch.....	70	58
5 and 6 inch.....	63	..
7 to 13 inch.....	60	..

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire Products.—Although the general trade has been expecting to hear of advanced prices for wire products, no official changes in quotations have as yet been made. Specifying continues heavy, and considerable new business is beginning to come in.

The market is on a decidedly sound basis, and some makers claim that the present prices are below normal. Shipments are heavy to all parts of the country. Cut nails continue to be quoted at $1.70. We quote as follows:

Wire nails, jobbers' carload lots, $1.75, retailers' carload lots, $1.80; cut nails (western makers), jobbers' lots, $1.70; painted barb wire, jobbers' carload lots, $1.75; retailers' carload lots, $1.80, with 40c for galvanizing; plain wire to jobbers in carloads, $1.55; and to dealers, in carloads, $1.60; polished staples, $1.75; galvanized staples, $2.15.

Wire Rods.—The market for wire rods continues quiet, and little or no demand is noted. The last sale was made at $30, and we offer this figure as the nominal price of both Bessemer and open hearth wire rods.

Coke.—Lower quotations continue to characterize the coke market, and prompt furnace fuel today is selling at the price demanded the latter part of September and the early part of October, namely, $2.50 a ton at the ovens. Consumers in the eastern Pennsylvania district have closed transactions at that figure and it is understood that $2.50 coke has been sold in this immediate district.

Some shippers claim that strictly first class Connellsville 48-hour fuel is being sold at $2.75, ovens. Foundry fuel has dropped 50 cents a ton, although one or two lots have been sold this week at $4, ovens. Several sales have closed at $3.50. We quote prompt furnace fuel at a range from $2.50 to $2.75, ovens, and foundry coke at $3.50 to $4, ovens.

The contract market continues quiet, although rumors of a transaction involving 10,000 tons a month are heard. Coke today is selling at what is considered a normal price and it is claimed that high prices ruling at the end of last year and the early part of this year were the result of competitive bidding on the part of anxious consumers.

There has been no demand and many requests have been received by operators to suspend shipments, which has given dealers some surplus tonnage to sell in the open market. The *Connellsville Courier* for the week ending Feb. 1 says production aggregated 422,753 tons, an increase of 6,471 tons over the week before. Shipments increased 186 cars. Revised quotations which represent the market today are:

Connellsville furnace	$2.50 to 2.75
Connellsville furnace contract	2.75 to 3.00
Connellsville foundry	3.50 to 4.00
Connellsville foundry contract	3.75 to 4.00

Car Wheels. — The placing of the Pennsylvania Railroad Co.'s big order for cars means the purchase of 64,000 freight car wheels for 8,000 H-21 steel hoppers. Between 15,000 and 20,000 wheels will be required for the Norfolk & Western cars, recently purchased. Thirty-three-inch freight car wheels are quoted at $15 to $15.50, and 36-inch passenger car wheels at $19 to $19.50.

Old Material.—The market for old material is extremely quiet and does not enjoy the position it should, when compared with markets for finished and semi-finished lines. Middlemen report that there is absolutely no demand and that some melters have refused to buy heavy melting steel at $14.50. The Pennsylvania and the Baltimore & Ohio railroad awarded rather large lists last week, and a large quantity of the scrap will be shipped to this district, having been distributed about equally between melters and dealers. The embargo against the Pittsburgh Steel Co.'s plant at Monessen was lifted the latter part of last week, but a new embargo was placed against the plant of the Carbon Steel Co., giving middlemen little or no advantage.

If the iron and steel scrap market should be featured by a rather active buying movement, it is probable that quotations on all grades would stiffen considerably. Quotations are:

Heavy melting scrap	$14.75
Rerolling rails	16.50 to 17.00
Malleable	14.00 to 14.50
Agricultural malleable	13.00 to 13.50
Bundled sheet scrap	12.75 to 13.00
Iron axles	26.00 to 26.50
Old iron rails	16.25 to 16.50
Stove plate	11.00 to 11.50
No. 1 wrought scrap	15.25 to 15.50
Old car wheels	16.00 to 16.50
Low phosphorus	18.00 to 18.25
Machine shop turnings	10.00 to 10.50
No. 1 busheling	14.00 to 14.50
Country mixed	11.00 to 11.25
Cast borings	10.25 to 10.50
No. 1 cast scrap	14.75 to 15.00

CHICAGO

Jobbers Enjoy Very Heavy Business

Office of THE IRON TRADE REVIEW,
1328 Monadnock Blk., Feb. 11.

On account of the persistence of congested mill conditions, western jobbers are experiencing an extremely heavy run of business. Although they are well covered by contracts with producers, it is expected that further difficulty in stock shortages will be experienced. Specifications for finished lines show no diminution and the volume of inquiry is in excess of that received during the previous week. The market for bar iron is a little easier and prices have dropped off slightly, the market now being quotable at 1.57½c to 1.62½c. Although railroad activity has fallen off somewhat as compared with previous weeks, many large car orders are pending and negotiations for rails continue. It appears that agricultural interests are covered for steel requirements for the second half to a certain extent, and that some of the smaller makers have bought bar iron for that delivery.

Pig Iron.—The pig iron market in the Chicago district has been exceedingly quiet during the past week and inquiries have been received only by those sellers who are able to quote low prices. No Birmingham producer will quote lower than $14, and the three larger interests are holding firmly to $14.50. Two of the latter refuse to consider second half business. The low quotations in the market are confined to small Tennessee stacks and to resale iron. Sales of southern iron during the past week are reported as in the neighborhood of 3,000 tons, practically all of which was Tennessee iron and sold on a basis of $13.50, Birmingham. The largest lot consisted of 600 tons. The only inquiry of any consequence reported is from a Chicago melter for 500 tons of southern foundry for second quarter delivery. Although one Chicago interest appears to be willing to quote $17.50, f. o. b. furnace, for some deliveries, recent sales of northern iron have been made at $18, including one lot of 2,000 tons. As previously reported, the momentary weakness in northern market seems to be due to a desire on the part of the producers to prevent accumulations of stock. Sales at any price are being confined largely to iron for delivery not later than third quarter and very little iron for the second half has been sold. In general, it is possible to obtain low quotations only for immediate delivery.

The disposition of the buyers still is to remain out of the market as long as possible. This may be ascribed partly to a desire to take advantage of any possible reduction in prices and to be sure of future requirements before covering for them. However, foundries in this territory are very busy and are constantly pressing the producers for earlier deliveries on contract tonnage. It is still thought that much second quarter tonnage remains uncovered, but under the present conditions, it is probable that the market will remain very quiet for from 30 to 60 days.

The following prices represent the market for Chicago delivery except northern foundry and malleable Bessemer, which are quoted f. o. b. local furnaces:

Lake Superior charcoal	$18.00 to 19.25
Northern foundry No. 2	18.00
Southern foundry No. 2	17.85 to 18.85
South'n Silveries, 5 per cent sil.	19.85
Jackson co. silveries 8 per cent	21.90
Malleable Bessemer	18.00
Alabama basic	18.85

Merchant Bars.—The situation in the bar iron market is considerably easier, as the mills have been able to catch up on deliveries to a large degree. New business can now be had in from four to six weeks. Some of the smaller agricultural makers have already covered for light tonnages for second half delivery, but the larger interests are still holding off in the expectation of lower quotations. In steel bars, agricultural inquiries may not be as heavy as usual for second half deliveries, as much of the tonnage included in first half contracts will be delivered during the third and fourth quarters. Some specifications against this tonnage have already been received. The market for bar iron is a little softer and desirable orders of good size would probably bring out a price of 1.57½c. Makers of hard steel bars are experiencing much less difficulty at present, owing to the good tonnages of re-rolling rails which continue to be offered by railroads.

We quote, f. o. b. Chicago, as follows:

Bar iron 1.60c to 1.62½c; hard steel bars, rerolled, 1.65c to 1.75c; soft steel bars, bands and small shapes, 1.63c; hoops, 1.63c; smooth finished machinery steel, 1 inch and larger, 1.78c; shafting 58 per cent off list for carload lots, 53 per cent off for less than carloads.

On iron and steel from local stock we quote as follows:

Bar iron, 1.95c per pound base; soft steel bars, 1.95c per pound base; soft steel hoops, 2.30c, full extras.

Structural Material.—A noteworthy feature of the market for structural material is the constantly increasing activity of jobbers. As in other lines, unsatisfied inquiry for mill delivery on structural material is being diverted to the warehouses and the tonnage taken out of store. In consequence, the tendency of store prices is decidedly upward and the jobbers are handling enormous quantities of business. The fact that some fabricators are well covered for considerable tonnage has saved the situation for some of the larger industrial projects, but such tonnage is not sufficient to satisfy the demand. Only 1,227 tons of structural material were required in the contracts placed during the past week. The leading interest has representation in one contract taken from the Milwaukee Western Fuel Co. for 450 tons for a trestle at Milwaukee, Wis. A. Bolter's Sons have taken 268 tons for the John R. Thompson theater building, Chicago, and the Missouri Valley Bridge & Iron Co. has taken 179 tons from the Santa Fe for structural steel for a gallery over storage tanks at Argentine, Kan. The King Bridge Co. has taken 330 tons from the Chicago, Milwaukee & St. Paul Railway Co., for superstructures and wheels and boxes for turntables.

We quote, f. o. b. Chicago, as follows:

Beams and channels, 15 inch and under, 1.68c. For extras, see Pittsburgh report.

Store prices are as follows:

All angles, 3 inches and larger, including 6 inches, $2.05 per 100 pounds; angles over 6 inches, $2.15 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $2.05 per 100

pounds, base; channels, 3 inches and larger, $2.05 per 100 pounds, base.

Rails and Track Fastenings.—The Great Northern has ordered 20,000 tons of rails, divided equally among the Cambria Steel Co., the Bethlehem Steel Co., the Pennsylvania Steel Co. and the Lackawanna Steel Co. It is reported that negotiations are under way on other lots of equal size, as buying previous to the first of the year has not satisfied railroad requirements. Western producers are sold up on track fastenings and in some cases are running further behind on specifications. It is reported that the rail mills of the leading interest are unable to make shipments at a rate equal to that at which specifications are being received. Prices are very firm.

We quote light rails, f. o. b. Chicago, as follows:

Light rails, carloads, 25 to 45-pound, 1.30c; 16 to 20-pound, 1.35c; 12-pound, 1.40c; 8-pound, 1.50c.

Light section relayers, 45 pounds and under, subject to inspection, $22 to $24; standard stection relaying rails, subject to inspection.

Track fastenings, f. o. b. Joliet, are as follows:

Angle bars, 1.50c; railroad spikes, 1.95c; smaller size spikes, 1.75c, base; track bolts with square nuts, 2.30c to 2.40c.

Plates.—Except that the tonnage necessary to meet railroad requirements is constantly increasing, there is no change in the market for this material. Both the leading interest and the independent producers in this district are sold up to capacity and have refused some very attractive business. Car buying was comparatively light during the past week as compared with recent activity. However, some good orders have been placed. The Arms Palace Horse Car Co. will build 12 cars in its own shops, the underframes and trucks to be furnished by the Bettendorf Axle Co. The Louisville & Nashville has ordered 500 gondolas from the Mt. Vernon Car & Mfg. Co. The Chicago, Rock Island & Pacific has ordered 20 70-foot coaches, 18 70-foot chair cars, seven 60-foot smoking cars, five 60-foot compartment cars and 10 60-foot baggage cars from the Pullman Co. All of the above are of all-steel construction.

We quote, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick, 6⅝ to 100 inches wide, 1.68c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, $2.05.

Bolts, Nuts and Rivets.—Undiminished activity is the rule in this market with the exception that new business in rivets is somewhat light. Bolt specifications, however, are being received at an increasing rate.

We quote prices on bolts, nuts and rivets as follows:

Rivets

Structural rivets, ¾ to 1¼ inches, 2.38c, base, Chicago, in carload lots; boiler rivets, 0.10c additional.

Bolt and Nut Discounts

Carriage bolts up to ⅝ x 6 inches, rolled thread, 75-10; larger sizes, 70-2½.

Machine bolts, up to ⅝ x 4 inches, rolled thread, 75-10-5; cut thread, 75-10; larger sizes, 70-7½.

Hot pressed nuts, square head, $5.70 off per cwt.; hexagon, $6.30 off per cwt.

Sheets.—One of the independent producers in this district has received inquiries which state that delivery cannot be obtained from mills in their own territory. Some of these inquiries were from jobbers who are willing to pay almost any price for prompt delivery.

We quote, f. o. b. Chicago, as follows:

Blue annealed, No. 10, 2.25c; No. 12, 2.20c. Box annealed, No. 28, 2.90c. Galvanized No. 28, 4.15c.

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Wire Products.—Although there is no apparent slackening in the volume of business offered, the producers are able to keep the time required for delivery within reasonable limits. Prices are very strong and further advances are expected.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.93; retailers' carload lots, $1.98; retailers' less than carload lots, $2.03; painted barb wire, jobbers' carload lots, $1.93; retailers' carload lots, $1.98; retailers' less than carload lots, $2.03, with 40c for galvanizing; plain wire, jobbers, carload lots, $1.73; retailers' carload lots, $1.78.

Merchant Pipe and Tubes.—In spite of the recent advances made in store prices by Chicago jobbers, a very heavy volume of business is still being offered. This includes both steel tubing and iron and steel pipe. No material advance in quotations on the latter has been made.

We quote store prices, f. o. b. Chicago, as follows:

Iron and Steel Pipe Basing Prices.

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
Butt.				
⅛ inch and ¼ inch.	69.2	48.2	62.2	42.2
⅜ inch	73.2	62.2	66.2	....
½ inch to 1½ inch	76.2	67.2	69.2	57.2
Lap.				
2 inch	73.2	64.2	65.2	54.2
4½ inch to 6 inch..	75.2	66.2	67.2	57.2
Card Weight.				
7 inch to 12 inch...	72.2	61.2	65.2	54.2
Extra Strong Plain Ends.				
Butt.				
⅛, ¼, ⅜ inch.....	64.2	52.2	58.2	46.2
½ inch	69.2	57.2	63.2	51.2
2 inch to 3 inch....	74.2	62.2	....	....
Lap.				
2 inch	70.2	58.2	64.2	52.2
7 inch to 8 inch....	64.2	52.2	58.2	46.2
Double Extra Strong.				
Butt.				
½ inch	57.2	45.2	....	....
¾ inch to 1½ inch.	60.2	48.2	....	....
Lap.				
2 inch	58.2	48.2	....	....
4½ inch to 6 inch..	59.2	47.2	....	....
7 inch to 8 inch....	52.2	40.2	....	....

Tubes

Diameter.	List price.	Lap weld steel, per cent off.	Charcoal iron, per cent off.	Cold seamless, per cent off.
1	30	..	..	57½
1¼	28	..	..	52½
1½	27	..	..	47½
1¾	22	51	40	35
2	20	51	40	35
2¼	22	51	36	35
2½	28	56	43¼	40
2¾	31	56	43¼	40
3	34	61	47	46
3¼	40	61	47	46
3½	43	63	40	46
4	55	63	50	46
5	76	56	..	..
6	102	56	..	..

Cast Iron Pipe.—The city of Columbus, O., will require 1,500 tons of water pipe, bids on which will be closed this week. The letting for the requirements of San Diego, Calif., has been called off, owing to the difficulty in obtaining satisfactory prices for the underlying bonds. It is thought in some quarters that some of the larger municipalities may experience the same difficulty in connection with their spring requirements, as the bond market appears to be very dull.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $31, 6 to 12 inches, $29, larger sizes, $28, gas pipe, $1 a ton higher.

Old Material.—The scrap market shows evidence of additional weakness, prices on a number of items having been shaded from 25 to 50 cents a ton during the past week. This weakness is further emphasized by rather heavy railroad offerings, including a list of 11,550 tons issued by the Santa Fe. This includes 1,000 tons of No. 1 railroad wrought, 800 tons of iron rails, 900 tons of No. 1 cast and 800 tons of knuckles, couplers and springs. Bids on this list were closed yesterday. The Wabash closed bids on 1,500 tons of scrap yesterday and the Michigan Central has invited bids on 1,510 tons, the principal item being 325 tons of steel rails. The Queen & Crescent has sent out a list of 116 tons, and the Chicago & Alton a list of 300 tons. The Chicago, Indianapolis & Louisville has issued a small list which consists principally of old bridge material.

While the continued weakness of the scrap market seems to be puzzling to many of those interested in it,

the cause of the condition is obvious. Until the scrap in the hands of the railroads is absorbed the market may be expected to be weak with possible momentary advances. Contrary to the opinion held in many quarters, no relief may be expected from any increase in business in finished lines until railroad offerings have been taken care of. Any increase in finished lines under existing conditions must necessarily make worse the preset situation, as it would bring about an even greater production of scrap with no corresponding consumption.

We quote dealers' selling prices, f. o. b. Chicago, as follows:

Gross Tons

Old car wheels	$16.75 to 17.25
Old iron rails	16.25 to 16.75
Rerolling rails (5 ft. and over)	15.50 to 16.00
Old steel rails (3 ft. and und.)	14.25 to 14.75
Frogs, switches and guards	12.50 to 13.00
Heavy melting steel	12.50 to 13.00
Shoveling steel	12.25 to 12.75

Net Tons

No. 1 R. R. wrought	$12.25 to 12.75
No. 2 R. R. wrought	11.50 to 12.00
Arch bars and transoms	16.25 to 16.75
Knuckles, couplers and springs	12.75 to 13.25
Shafting	16.50 to 17.00
Iron car axles	21.50 to 22.00
Steel car axles	18.25 to 18.75
Locomotive tires	13.50 to 14.00
Dealers' forge	10.75 to 11.25
Pipe and flues	9.00 to 9.50
No. 1 cast	13.50 to 14.00
No. 1 busheling	10.25 to 10.75
No. 2 busheling	7.75 to 8.25
No. 1 boiler cut	9.25 to 9.75
Boiler punchings	13.00 to 13.50
Cast and mixed boring	6.75 to 7.25
Machine shop turnings	7.75 to 8.25
Railroad malleable	13.25 to 13.75
Agricultural malleable	12.25 to 12.75
Angle bars, splices, etc., iron	16.50 to 17.00
Angle bars steel	11.50 to 12.00
Stove plate and light cast scrap	11.00 to 11.50

CLEVELAND

Contract for Large Tonnage of Sheet Bars

Office of THE IRON TRADE REVIEW,
Penton Bldg., Feb. 11.

Iron Ore.—Some ore is still being offered to vessel men, but no additional contracts are reported. The market is quiet. It is not expected to revive until the approach of spring, and then it is hoped there will be a demand for low grade ores not yet sold.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.40; Mesabi Bessemer, $4.15; old range non-Bessemer, $3.60; Mesabi non-Bessemer, $3.40.

Pig Iron.—Foundries are taking all the iron they can get on contract and frequently request anticipation of shipments. There is, however, no buying in this immediate district, except in carload lots, and on such sales, $17.50, Cleveland furnace, is obtained without difficulty. The shading of $17.50, valley, seems to be confined to one furnace recently blown in, which has made considerable off iron since it resumed. For delivery during the first half of this year, we quote as follows, delivered, Cleveland:

No. 1 foundry	$18.25
No. 2 foundry	17.75
No. 2 southern	17.85
Bessemer	18.15
Lake Superior charcoal	19.10
Silveries 8 per cent silicon	21.55
Bessemer ferro, 14 per cent	29.55

Coke.—Softness is more pronounced in furnace coke, which seems to be settling to $2.50 for prompt delivery and $2.75 on contract. Foundry coke is holding up pretty well in face of the decided weakness in furnace fuel. Owing to the very mild winter, which has continued unbroken with the exception of a few days, a greatly decreased quantity of low grade coke has been used for heating purposes, and this unusual condition has been a factor in the market. It is expected that with the decline in prices of the higher grade coke, production of coke high in sulphur will decrease.

Connellsville furnace coke, $2.50 for prompt delivery, and $2.75 on contract; Connellsville foundry coke, $3.50 to $3.75 for prompt, and $3.75 on contract.

Finished Material.—The weakness in the coke market and a general feeling of uncertainty as to the markets in general have given many consumers the impression that they ought to obtain more prompt delivery on contracts, and mills report that they have been hounded for deliveries to an unusual extent during the past week. Barring perhaps a few exceptional cases, mills are not improving their deliveries and are having all they can do to keep their promises made some time ago. Jobbers continue to do a very active business and buyers frequently pay warehouse prices on rather large tonnages, as they are unwilling to await deliveries from the mills. Some buyers are showing less disposition to place orders with eastern mills, but those mills are still doing a very fair business without reducing quotations. Bolt and nut manufacturers in this city report very heavy business at full prices, with deliveries delayed about three months.

The erection of the municipal lighting plant, Cleveland, calling for 935 tons, has been awarded to the McClintic-Marshall Construction Co.

Within a few days, one of the large independent companies made a contract with a Canton concern for a very large tonnage of sheet bars. The contract provides for payment on a sliding scale basis. It is understood a long period of delivery is covered.

Old Material.—The scrap market continues to be extremely quiet. Dealers report that demand is of a negligible character, mills apparently being sufficiently supplied. Prices are nominal. They follow:

Gross Tons

Old iron rails	$17.75 to 18.50
Old steel rails (under 6 ft.)	15.00 to 15.50
Old steel rails (over 6 ft.)	16.25 to 16.75
Relaying rails	25.00 to 26.00
Old steel boiler plate	11.50 to 12.00
Malleable iron (railroad)	14.50 to 15.00
Steel axles	19.50 to 20.00
Axle turnings	10.00 to 10.50
Malleable iron (agricultural)	12.00 to 12.50
Heavy steel	13.00 to 13.25
Country mixed steel	11.00 to 11.50
Bundled sheet scrap	11.00 to 11.50

Net Tons

No. 1 R. R. wrought	$13.75 to 14.00
No. 1 busheling	12.00 to 12.50
No. 1 machine cast	12.50 to 13.00
No. 1 dealers' wrought	11.50 to 12.00
Machine shop turnings	7.00 to 7.50
Pipes and flues	9.50 to 10.00
Wrought drillings	7.00 to 7.50
Cast borings	7.00 to 7.50
Stove plate	10.00 to 10.50
Wrought iron arch bars	17.00 to 17.50
Wrought iron piling plate	16.00 to 16.50

Will Build Coke Plant

St. Louis, Feb. 11.—The Laclede Gas Light Co. is perfecting plans to erect a coke oven and recovery plant in South St. Louis, which will represent an investment of $5,000,000, according to an announcement made Monday. The plant, it is expected, will result in a considerable reduction in the cost of gas to St. Louis consumers, and also to make possible the establishment of at least one blast furnace in the vicinity of the city.

CINCINNATI

Pig Iron Prices Tending Downward

Office of THE IRON TRADE REVIEW,
503 Mercantile Library Bldg., Feb. 11.

Pig Iron.—Although it is rumored that one Tennessee furnace is offering its iron on the basis of $13.25, Birmingham, for No. 2 foundry for nearby shipment, sales are very light and do not show any increase over those of last week. General inquiries also are very few, but a little encouragement can be found in the fact that there are several in the hands of the dealers at the present time for fair tonnages. Prices as a general rule show a tendency to go downward, and while the majority of the sales are being made at nothing lower than the quotations that have prevailed for the past two weeks, occasional contracts are being reported made at figures slightly lower, and it is quite probable that these latter will become more established towards the end of the week. There are at present, however, hardly enough sales being made to have a general effect upon prices.

There is more southern Ohio iron being sold at present than southern iron, but sales are very small and unsatisfactory at that. The tendency in this district is also downward, and rumors of $16, Ironton, for the first half, are becoming more frequent. It would not be surprising, therefore, if this price should be established as the minimum before the end of the week, although this is hardly the case at the present time. Sales during the past week will average about $16.25, Ironton, for No. 2 foundry iron for the first half, although some furnaces are holding at $17 for this delivery but are booking practicaily no new business.

Contracts for delivery into the second half are being made more and more frequently. A recent lot of 1,500 tons divided between northern and southern grades was recently sold to a central western manufacturer for the last half, and 500 tons of southern iron to a southern Ohio melter for the same shipment. There is an inquiry still pending in central Indiana for 2,000 tons of assorted grades for the second half and another for 1,000 tons of northern iron in central Ohio for the first half. There is also an inquiry for 500 tons of malleable iron from central Ohio for the second quarter, and a sale of 500 tons of this same grade was recently made to a southern Ohio user for the first half. With freight rates $3.25 from Birmingham, and $1.20 from Ironton, we quote Cincinnati prices for spot and first quarter delivery as follows:

Southern foundry No. 1	$17.00 to 17.50
Southern foundry No. 2	16.50 to 17.00
Southern foundry No. 3	16.00 to 16.50
Southern foundry No. 4	15.75 to 16.25
Southern gray forge	15.50 to 16.00
Mottled	15.50 to 15.75
Southern No. 1 soft	17.00 to 17.50
Southern No. 2 soft	16.50 to 17.00
Standard southern car wheel	27.25 to 27.75
Northern No. 2	17.45 to 17.95
Northern No. 3	16.95 to 17.45
Northern No. 4	16.70 to 17.20
Silveries 8 per cent silicon	20.70 to 21.20

Coke.—The foundry coke market continues somewhat better than that for furnace coke, and prices on the latter have grown a little weaker since the first of the week. The fact that several furnaces were blown out unexpectedly recently has had a bad effect upon the market, as it decreases the consumption at a time when the output is already exceeding the demand. Prices follow:

	Prompt shipment.	Contract.
Connellsville district:		
Foundry coke	$3.75 to 4.00	$3.50 to 4.00
Furnace coke	2.65 to 3.00	2.50 to 3.00
Wise county district:		
Foundry coke	3.75 to 4.00	3.50 to 3.75
Furnace coke	2.75 to 3.00	2.75 to 3.00
Pocahontas district:		
Foundry coke	3.50 to 3.75	3.50 to 3.75
Furnace coke	2.85 to 3.00	2.85 to 3.00
New River:		
Foundry coke	3.25 to 4.25	3.00 to 4.00
Furnace coke	2.85 to 3.00	2.85 to 3.00

Finished Material.—The local sheet mill is receiving a good inquiry, and in some cases, premiums are being offered for spot or nearby shipments. The sheet market is firm and the recently established prices are holding at 2.35c for black sheets No. 28 gage, and 3.50c for galvanized No. 28, both Pittsburgh basis. Specifications are heavy, and the mill is fully eight weeks behind on deliveries.

Practically all of the other finished materials that are being contracted for at the present time are being handled either by local warehouses or by the smaller manufacturing plants in this vicinity. Building materials are the best in demand, and from all appearances this will be an exceptionally good building year here. Warehouse business continues good, with the outlook that it will be greatly improved by spring. We quote below warehouse prices, f. o. b. Cincinnati, as follows:

Steel bars, 2.05c to 2.15c, base; iron bars, 2.00c to 2.10c, base; structurals, 2.10c to 2.25c, base; plates, ¼ inch and over, 2.10c to 2.25c, base; sheets, blue annealed No. 10, 2.25c to 2.90c, base; rivets, cone head 2.60c to 2.70c, base; cold rolled shafting, 58 to 55 per cent off on round, and 55 to 50 per cent discount on flat, square and hexagon; steel hoops, 2.10c to 2.20c, base; full extras; boiler tubes as follows: 1½ inch, 46 per cent discount; 1¾ to 2¼ inch, 57 per cent discount; 2½ inch, 60 per cent discount; 2¾ to 3¼ inch, 65 per cent discount; 3½ to 4½ inch, 68 per cent discount; 5 to 6 inch, 60 per cent discount; soft steel cold twisted concrete bars, cut to length as follows: ¾ inch square and larger, 2.15c to 2.25c; ⅝ inch square and larger, 2.25c to 2.35c; ½ inch square and larger, 2.35c to 2.45c; 5-16 inch to ⅜ inch square and larger, 2.25c to 2.65c; and ¼ inch square and larger, 2.65c to 2.75c.

Old Material.—The tendency of the scrap iron market is downward, but prices have not changed to any extent within the past few days. There is only a very small amount of business being transacted in comparison with what there should be, the aggregate tonnage contracted for by users during the past week being considerably smaller in most cases than that of the week previous. Also, dealers have not added much to their yards for some time, as the amounts already on hand exceed the demand. As a consequence, prices have been fluctuating a great deal, and they are being governed more by the conditions of the sales in a great many instances than by any fixed level. Some dealers are also beginning to show a lack of confidence, and are beginning to make concessions for contract shipment. We quote prices dealers will pay and also dealers' selling prices in Cincinnati and vicinity, as follows:

Gross Tons

Old iron rails	$13.25 to 13.75
Old steel re-rolling	11.75 to 12.25
Old iron axles	17.75 to 18.25
Heavy melting scrap	11.25 to 11.75
Relaying rails	20.50 to 21.00
Bundled sheet scrap	8.75 to 9.25

Net Tons

Old No. 1 R. R. wrought	$10.50 to 11.00
No. 1 yard wrought	9.00 to 9.50
No. 1 machine cast	10.75 to 11.25
No. 1 busheling	9.00 to 9.50
Stove plate	7.75 to 8.25
Machine shop turnings	6.75 to 7.25
Cast borings	7.00 to 7.50
Heavy turnings	7.25 to 7.75
Mixed cast	9.25 to 9.75
Breakage	7.00 to 7.50
Malleable	8.75 to 9.25

PHILADELPHIA

Sound Fundamental Conditions in East

Office of THE IRON TRADE REVIEW,
Philadelphia, Feb. 11.

Underlying soundness in the eastern iron and steel industry continues apparent despite an easing up of deliveries in some finished lines, softness in pig iron prices and weakness in scrap. Consumption, by all reliable indications, is being maintained on a tremendous scale. Buyers are taking out their contracts fully and promptly and there is no significant accumulation of product either in makers' or buyers' hands. Pig iron stocks in eastern Pennsylvania remain almost nominal with orders many times heavier; in Virginia, the decline in stocks is maintained. The scrap market still staggers under an overflooding supply of material. Though new business is quieter in most lines, some large projects continue to come out. The Cramp ship yard has closed for two large merchant steamships for a new line through the Panama canal. The Norfolk & Western railroad is seeking material for about 6,500 additional cars to be built in its own shops and also is out for 6,500 tons of bridge material. With an easier condition of deliveries, premium business in finished lines is of smaller extent.

Pig Iron. — With the underlying conditions very sound, and consumption continuing on a tremendous scale, eastern pig iron makers, as a rule, take the position that to rush new selling with buyers in their present state of indifference, would only result in driving down prices. In the eastern Pennsylvania district, statistics among the merchant furnaces continue to show metal moving to buyers is fully balancing or exceeding the tonnage being produced. Stocks which have remained for months at a practical minimum are not increasing and orders on furnace books awaiting delivery are many times the iron on the banks. Furthermore there is the same insistence of buyers for strict fulfillment of contract deliveries. In the Virginia district, a marked reduction of stocks was shown in January though new business was not so heavy. The market in Philadelphia and vicinity continues to bring out voluntarily such a meager amount of new business that exact price levels on the common grades of foundry, basic, etc., are not clearly shown. The market reveals more or less shading of prices, but most of it is in the lower grade lots and in certain brands not so much sought by consumers. The asking price on standard eastern Pennsylvania No. 2X remains about $17.50, furnace, or $18.25, Philadelphia, but lower has been done, as reported. The absolute minimum of the market on any brand of No. 2X, recently done, has been $17, furnace. In Virginia iron, the price of $15.50, furnace, for No. 2X rules for second quarter, first half and third quarter. For this quarter, the range is $15.50 to $16, furnace. Low grade iron shows considerable range. One pipe maker in this district has purchased off-lots of northern and Virginia iron as low as $16, delivered. Low grade southern iron has been offered in this market at $12.75, Birmingham. Good pipe forge is around $17, delivered. Rolling mill forge is somewhat higher. Basic iron remains untested at around $18, delivered, with no inquiry. A buyer in this district has closed for 1,500 tons of low phosphorus iron for the next several months' delivery, of which 1,000 tons went to an eastern Pennsylvania maker. Standard low phosphorus is strong at $24.50, Philadelphia, with little offered. A local buyer continues to negotiate for 500 to 1,000 tons of malleable for February. The Bethlehem Steel Co. has blown in an idle stack, and the Delaware River furnace which has been idle for repairs will go in the latter part of this month.

We quote for prompt and first quarter shipment delivered to consumers' plants, in Philadelphia and vicinity, as follows:

Eastern Pa. No. 1X foundry	$18.50 to 18.75
Eastern Pa. No. 2X foundry	18.25 to 18.50
Eastern Pa. No. 2 plain	18.00 to 18.25
Standard forge (Eastern Pa.)	17.25 to 17.50
Basic (Eastern and Central Pa.)	18.00
Virginia No. 2X	18.30 to 18.55
Southern No. 2	17.50 to 18.00
Malleable	19.50 to 20.00
Standard low phos. Phila.	24.50

Iron and Steel Bars.—Several of the leading steel bar makers continue to decline tonnage offered for third and fourth quarters by eastern consumers, because they are adverse to extending their forward obligations under the present congestion of deliveries. Such inquiries aggregate a round tonnage weekly. Steel bar deliveries are not improving. Eastern makers continue to sell prompt bars at 1.85c, Philadelphia. There is an active demand for concrete bars at 1.55c, Pittsburgh, and upward. The C. & O. railroad is reported to have placed its inquiry for 2,000 tons of steel bars for second quarter with a Pittsburgh maker. Iron bar makers are not able to get premiums so easily for early delivery, but the market remains firm at a minimum of 1.60c, eastern Pennsylvania mill. The volume is good.

We quote for delivery to consumers' plants in Philadelphia and vicinity: Steel bars at 1.55c to 1.60c on contract and common bar iron at 1.65c to 1.75c. Prompt steel bars on mill shipments are quoted at 1.85c to 1.95c, delivered, and from store are quoted at 2c to 2.15c, delivered. Cut nails are quoted from 1.90c to 1.95c, Philadelphia. Shafting is quoted at 58 and 53 off in base territory.

Plates.—The Wm. Cramp & Sons Ship & Engine Building Co. has booked a contract for two large freight and passenger steamships for a new line to be operated through the Panama canal, but the identity of the purchaser has not been announced. These vessels will be 500 feet long by 62 feet beam and will require about 15,000 tons of shapes and plates which it is expected will come from a Pittsburgh mill. The Norfolk & Western railroad has officially decided upon the construction of 6,500 cars in its own shops, which will be in addition to several thousand cars recently placed with outside builders. This railroad is now in the market for the steel requirements for these cars and it is understood has already arranged with Pittsburgh mills for the material for about 2,000 cars, calling for approximately 20,000 tons. The 6,000 tons of plates for elevated work in New York City are still pending and the deposition of an inquiry for 3,000 to 4,000 tons for an eastern car builder has not been learned. Eastern plate mills continue to maintain their record-breaking output and shipments of January, and tonnage being entered for rolling are heavy. Deliveries on universal plates which have been more extended than for sheared plates are easier at five to six weeks. Deliveries in general run four to six weeks. Prices with eastern Pennsylvania makers are firm at 1.60c, Pitts-

burgh, for sheared, and 1.65c for universals.

We quote delivered to consumers' plants in Philadelphia and vicinity: Sheared steel plates on contract, 1.60c to 1.75c; universal plates on contract, 1.60c to 1.80c; sheared plates for early delivery, 1.75c to 1.85c; universal plates for early delivery, 1.80c to 1.85c. Plates from store are quoted at 2.15c to 2.25c, delivered.

Structural Shapes. — Deliveries on shapes with eastern makers continue to show improvement and range from six weeks upward on lots of size. With this development has come a reduced volume of quiet shipment business at premium prices and the 1.50c, Pittsburgh, level is becoming more acceptable. Some eastern Pennsylvania makers, however, are still holding to 1.60c, Pittsburgh, on contracts or 1.75c, Philadelphia, and to 1.75c mill for early delivery. New business is not so heavy. The Norfolk & Western railroad is figuring upon its requirements for bridge work totaling 6,500 tons. Bids are being taken on a 20-story building on South Penn Square, this city, 2,000 tons, and go in March 6, for a permanent administration building at Balboa, Panama canal. It develops that an error was made by the government in estimating its requirements for the Cristobal - Balboa transmission line, Panama, at 22,000 tons and that the accurate amount will probably not exceed 5,000 tons.

We quote for delivery to consumers' plants in Philadelphia and vicinity: Structural shapes on contract, 1.60c to 1.75c; for early delivery, 1.80c to 2.00c; from warehouse stocks, 2.15c to 2.25c.

Semi-Finished Steel.—A large steel-making consumer in this market is inquiring for prices on his requirements of billets and blooms for third quarter or last half. As in the case of ealier deliveries, many makers are unable to spare the tonnage asked and are declining to quote. Eastern works continue to be out of the market as sellers of semi-finished steel for first half. Some sales of off-lots of billets are being made.

We quote delivered to consumers' plants in Philadelphia and vicinity: 4 x 4-inch open-hearth and Bessemer rolling billets at $29 to $31, and forging billets at from $36 to $40.

Sheets.—Buyers in the eastern district continue to show more interest in contracts for second quarter and in some cases, beyond, and they are not hesitating to pay the schedule of eastern mills, which is 1.90c, Pittsburgh, or 2.05c, Philadelphia, for No. 10 gage. Specifications are active.

We quote for delivery to consumers' plants in Philadelphia and vicinity: No. 10 gage annealed sheets at from 1.95c to 2.05c.

Coke.—Eastern buyers of coke are still able to buy their early needs at new low levels. The lowest prices for furnace fuel yet came out this week when one interest closed for 1,500 to 2,000 tons of prompt Connellsville coke at below $2.50, ovens. Just prior to that, this buyer had taken an equal lot for prompt shipment at $2.65, ovens. Another eastern furnace company has contracted for a moderate tonnage for shipment to July at slightly below $2.75, ovens. There is considerable inquiry for foundry coke.

Old Material.—The heavy supply of scrap coming out which seems to have glutted the market, continues to bring with it a descending scale of values. Some buyers had dropped their offers so low that they believed them prohibitive, merely to avoid taking any further tonnage, only to have these prices accepted by dealers in some cases. This is the situation that has developed a $13.50, delivered, price for heavy melting steel and one buyer is now offering but $12.50, delivered, for this grade. The Bethlehem Steel Co., which recently reentered the market, has closed for a considerable tonnage of heavy steel, understood to have been 5,000 to 10,000 tons, at reported prices of $13.50 and $13.75 delivered. The railroad lists closing the past week brought $14 or over on heavy steel, but this was bid up by dealers covering on higher priced orders taken sometime ago. Car wheels and heavy cast which have been holding up quite well, weakened this week, foreign buyers of wheels having reduced their offers. Other grades are lower and the whole list is heavy. New orders are of moderate volume.

We quote gross tons, delivered to consumers' plants in eastern Pennsylvania and western New Jersey, as follows:

Old iron rails	$18.00 to 18.50
Old steel rails (rerolling)	15.75 to 16.25
No. 1 heavy melting steel	13.50 to 13.75
Old car wheels	15.50 to 16.00
Old iron axles	27.00 to 28.00
Old steel axles	20.50 to 21.50
No. 1 railroad wrought	15.50 to 16.00
Wrought pipe	12.75 to 13.25
Cast borings	10.50 to 11.00
Machine shop turnings	10.75 to 11.25
Heavy cast (broken)	14.50 to 15.00
Malleable	13.50 to 14.00
Stove plate	10.75 to 11.25
No. 1 forge	13.00 to 13.50
Low phosphorus	17.50 to 18.00

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J.; $1.10 to Pottsville, Pa., Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

ST. LOUIS

Very Little Business in Pig Iron

Office of THE IRON TRADE REVIEW,
St. Louis, Feb. 11.

Pig Iron.—Local sales agents did a peddling business in pig iron last week, and about the only inquiry on the horizon today is for 500 to 600 tons of southern No. 2 for prompt shipment. The inquiry for 2,000 tons of car wheel iron that was put out about three weeks ago, has not been closed, but the inquirer is so slow about buying that sales agents are beginning to look upon the matter as virtually withdrawn. No improvement of consequence is expected by local dealers until after the change of administration of the national government. Southern No. 2 is usually quoted at $13.50 to $14, Birmingham basis, but there is plenty of resale iron that might be had as low as $13. Northern iron is virtually in no demand, with prices stationary. Prices on southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$17.25 to 17.75
Southern No. 2	16.75 to 17.25
Southern No. 3	16.25 to 16.75
Southern No. 4	15.50 to 16.50

Coke.—The market is quiet, with some business being done for small lots for quick shipment.

Old Material.—The market for all grades of scrap is extremely dull, except relayers, which are in good demand. The railroads are flooding the market with other grades of scrap, and the mills have learned by inventorying their stocks that they have more scrap on their yards than they expected to find. Prices have dropped about 50 cents a ton on all grades. Prices which dealers are willing to pay, f. o. b. St. Louis, follow:

Gross Tons

Old car wheels	$14.50 to 15.00
Old iron rails	14.00 to 14.50
Rerol'g rails (5 ft. and over)	15.00 to 15.50
Old st'l rails (3 ft. and under)	13.50 to 14.00
Light section relayers (45 lbs. and under) subject to inspec.	23.50 to 24.50
Relay'g rails, subject to inspec.	23.50 to 24.50
Frogs, switches and guards	13.00 to 13.50
Heavy melting steel	13.00 to 13.50
Shoveling steel	11.25 to 11.50

Net Tons

No. 1 railroad wrought	$12.00 to 12.50
No. 2 railroad wrought	11.50 to 12.00
Arch bars and transoms	14.50 to 15.00
Knuckles, couplers, springs	11.00 to 11.50
Shafting	14.50 to 15.00
Iron car axles	21.50 to 22.00
Steel car axles	18.00 to 18.50
Locomotive tires	12.00 to 12.50
Pipe and flues	7.00 to 7.50
Tank iron and cut boilers	7.00 to 7.50
No. 1 cut busheling	10.00 to 10.50
No. 2 cut busheling	8.00 to 8.50
Cast and mixed borings	6.75 to 7.25
Machine shop turnings	8.25 to 8.75
R. R. malleable	11.00 to 11.50
Agricultural, malleable	9.50 to 10.00
Stove plates	8.50 to 8.75
Angle splice bars (iron)	13.00 to 13.50
Angle splice bars (steel)	12.00 to 12.25

NEW YORK

Pig Iron Continues Dull

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Feb. 11.

Iron Ore.—Eastern furnaces apparently have some uncovered ore requirement up to July 1, and they show a willingness to pay around 8 cents per unit tidewater for high-grade material. They are making no great efforts to buy, however, with the prevailing quiet market in pig iron. Little foreign ore of such high quality as desired is now available on the 8 cents per unit basis.

Pig Iron.—The lifeless state of the pig iron market in the metropolitan and surrounding districts still prevails, although there is a feeling in some directions that sentimentally the situation has improved and that the expected resumption of buying will not be long delayed. On the surface, the market is dull in new demand and soft in price tone with both buyers and sellers deadlocked as to who shall make the initial move in breaking the present stagnation. As has been the case for several weeks past, so little business is going that it does not afford a very true line on prices. To all appearances, the tidewater level for northern No. 2X continues at $18 to $18.25, though this range is not strictly tested. Pending inquiries in this district scarcely total 1,000 tons. A Massachusetts machinery builder continues to negotiate for 3,000 tons of high sulphur No. 2X for second quarter. A buyer in this territory has been inquiring for 400 tons of early No. 2X. The Brooklyn navy yard has purchased 400 tons of low phosphorus iron for early delivery at $26.25, delivered, the business being awarded to Marshall Matlock & Co., Philadelphia. The Musconetcong Furnace, Stanhope, N. J., will resume the latter part of the present month, after an idleness of several years. The output of the stack will be taken by the Singer Mfg. Co. We quote:

Northern foundry No. 1	$18.25 to 18.50
Northern No. 2X foundry	18.00 to 18.25
Northern No. 2 plain	17.75 to 18.00
No. 2 Virginia	18.30 to 18.55
No. 2 southern foundry	18.50 to 18.75
Malleable	19.00 to 19.50
Gray forge	17.25 to 17.50

Ferro-Alloys.—Some shading of the $65 price ferro-manganese for early shipment is being done, but this is usually confined to resale material in carload lots. One seller reports an aggregate of several thousand tons taken for second and third quarters during the past few days at $65, seaboard, which is the firm level of the forward market. Inquiry for ferro-manganese and other alloys is light.

We quote standard English 80 per cent ferro-manganese at $64 to $65, seaboard, for early and for first half shipment and $65 for second half; 50 per cent ferro-silicon on contract at $75, Pittsburgh or Philadelphia, for carloads, $74, for larger lots, and $73, for 600 tons or more.

Plates.—The Pennsylvania Railroad officially announces it has placed orders for 10,000 cars against its recent inquiry for 12,300 cars, which include 8,000 hoppers, 1,000 gondolas, 500 refrigerator and 500 box cars. The division of the order gives the Cambria Steel Co., 4,500; Pressed Steel Car Co., 2,500; Standard Steel Car Co., 1,500; American Car & Foundry Co., 1,000; Ralston Steel Car Co., 500. The Norfolk & Western is understood to have placed the material for 2,000 additional cars with a Pittsburgh mill and is inquiring for the steel for a number of additional cars. The Newburgh & South Shore Railroad has given the Pressed Steel Car Co., 125 ore cars; the Ralston Steel Car Co., 50 general service cars, and the Standard Steel Car Co., 50 cars of an all steel type. The Baltimore & Ohio Railroad has issued a formal inquiry for 1,000 hoppers and 500 refrigerator cars, the Seaboard Air Line will soon be out for 1,500 cars and the Norfolk & Southern for 500 cars.

The Atlantic Coast Line has taken bids on 1,300 cars. The Passaic valley sewer in New Jersey, which may require a heavy tonnage of plates for riveted pipe construction is now showing activity and the general contract will soon be awarded. Deliveries of plates with eastern mills show a slight easiness but the new tonnage is still heavy. Eastern mill prices continue at 1.60c, Pittsburgh, for sheared and 1.65c, for universals or 1.76c to 1.81c, New York. Premium business is not so plentiful.

Distribution of the large Harriman order, calling for about 13,300 cars, has finally been made. The division is about as follows: Pullman Co., 5,000 box and stock cars; Pressed Steel Car Co., 2,700 gondola, hopper and tank cars; American Car & Foundry Co., 2,300 box cars; Standard Steel Car Co., 2,000 box and automobile cars and cabooses; Bettendorf Axle Co., 1,300 work and flat cars.

We quote, delivered at New York tidewater, for first quarter, 1.76c to 1.86c, New York, on sheared plates. Some makers are asking $1 higher for universal plates. On third quarter and last half contracts, Pittsburgh district, makers are quoting 1.61c to 1.66c, New York. Plates from store 2.15c.

Structural Material.—Eastern shape makers who have been recently opening their books more liberally for additional forward business have been booking liberal tonnages, a considerable part of which is from western buyers, showing that the congestion in deliveries among the middle western mills continues unabated. Deliveries in these sales have usually been at a minimum of about six weeks and the prices have been around 1.60c mill or the equivalent of 1.70c, Pittsburgh, for western shipment. Delivery conditions with eastern shape mills are generally easier. The E. E. Smith Contracting Co. submitted the lowest bid the past week on the general construction contract of section 8, of the new Queens elevated line, which will require about 24,000 tons of steel. This requirement it is understood will be furnished by the American Bridge Co.

Plans have been filed for the new up-town store of Lord & Taylor, Fifth avenue and Thirty-eighth street, to require about 6,000 tons. New lettings are only fair. The Radley Steel Construction Co. has 1,400 tons for an up-town building for the Sheffield Farms-Slawson-Decker Co.; Eidlitz & Ross, 1,800 tons for the Bradstreets printing building, this city, for which Bethlehem steel is specified; Boston Bridge Co., 500 tons for a Boston & Maine bridge at Hoosick, N. Y., and the Phoenix Bridge Co., 600 tons for a barge canal bridge at Oswego; Jones & Laughlin Steel Co., 250 tons for the Carpenter Memorial Library, Manchester, N. H. The Pennsylvania Steel Co., as previously indicated, has finally been awarded the 12,000 tons for the Queens elevated railroad extension, bids for which were opened several weeks ago. Bids are going in for a loft building for the McMorrow Engineering & Construction Co., West Thirty-fifth street, 1,100 tons, and an award is expected soon on an elevated building for the

Standard Mail Order Co., West Fifty-fifth street, about 2,000 tons.

We quote for New York delivery for first quarter as follows: Structural shapes, 1.66c to 1.76c. On third quarter and last half contracts, Pittsburgh district makers are quoting 1.61c to 1.66c New York.
Structural shapes from store, 2.15c.

Iron and Steel Bars.—Specifications for delivery as far as eight or nine months ahead are now being filed by steel bar consumers against contracts recently closed for the last half of the year. There is no cessation of the intense pressure for deliveries upon the steel bar mills. Specifications in this district are very heavy and there is more or less new forward contracting, but some buyers show a disposition to hold off a while before covering for the third and fourth quarter. The iron bar mills in nearby territory are operating actively and getting a good volume of business for early delivery. This market remains at a minimum of 1.60c mill. Prices of cut nails have been advanced $1 a ton to a basis of 1.90c, New York, in carloads.

We quote for New York delivery, steel bars on contract from 1.56c to 1.61c, and common iron bars, 1.65c to 1.75c. Steel bars from store are quoted at 2.05c.

Cast Iron Pipe. — Gas companies have been entering the market more actively of late and a number of them are placing orders for lots ranging from 500 to 2,500 tons. The United States Cast Iron Pipe & Foundry Co. has lately taken orders in this territory for 7,000 to 8,000 tons of this character of business. R. D. Wood & Co. took the Ramsey, N. J., order of 950 tons, bidding $26.40, delivered, for the 4-inch and $24.70, delivered, for the 6 to 10-inch pipe. Newark, N. J., will soon be in the market for several thousand tons. Bids are going in this week on 2,600 tons for Worcester, Mass., and 750 tons for Beverly, Mass.

We quote six-inch pipe at from $24 to $26, f. o. b. New York, in carload lots.

Rails and Track Material. — Small rail orders characterize the market. The Utah Light & Railway Co., a Harriman interest, has placed 2,000 tons with the Illinois Steel Co. The Baltimore & Ohio has given the Pennsylvania Steel Co. 1,000 tons, and the same maker has taken 540 tons of girder rails from the Board of Harbor Commissioners, San Francisco, and 600 tons from McArthur Bros., contractors. The Third Avenue Railroad Co., this city, is in the market for 1,500 tons of girder rails.

Old Material.—The new selling that is being done in scrap, and this is not of large volume, continues to bring out a lower range of prices. The market shows every appearance of suffering from an over-supply of material. Cast scrap sold in this market this week 50 cents lower and other grades are either off in price or are showing weakness. Heavy steel eastern Pennsylvania ranges from $13.50 to $14, delivered. The reappearance of the Bethlehem Steel Co. as a buyer of steel may help the local market. Consumers of railroad wrought are offering but $14.50 to $14.75, delivered. Car wheels are easier, as the foreign demand for this material is less active. We quote, gross tons, prices New York dealers will pay at tidewater, as follows:

Old car wheels	$13.00 to 13.50
Old iron axles	22.00 to 22.50
Steel axles	15.00 to 15.50
Old steel shafting	14.50 to 15.00
No. 1 heavy melting steel	11.50 to 11.75
No. 1 R. R. wrought	13.00 to 13.50
Wrought pipe (not galvanized)	10.00 to 10.50
Cast borings	8.00 to 8.50
Machine shop turnings	8.50 to 9.00
Heavy cast	11.75 to 12.00
Stove plate	9.00 to 9.25
Grate bars	8.00 to 8.25

Freight rates on scrap per ton to Steelton, Pa., Columbia, Pa., Pottsville, Pa., and Harrisburg, Pa., are $1.50 from Jersey City, and $2.00 from New York; to Coatesville, Pa., Ivy Rock, Pa., Phoenixville, Pa., and Reading, Pa., $1.50 from Jersey City, and $1.80 from New York; to Bethlehem, Pa., $1.10 from Jersey City, and $1.60 from New York; to Roebling, N. J., $1.00 from Jersey City, and $1.50 from New York; to Milton, Pa., $1.60 from Jersey City, and $2.00 from New York; to Jersey City, $1.00 from New York; to Newark, $1.10 from New York.

BUFFALO

Buying Confined to Few Melters

Office of THE IRON TRADE REVIEW,
Buffalo, Feb. 11.

Pig Iron.—Prices softened again during the week just past. The placement reached a total of 45,000 tons, the booking being done with but a few consumers, while the majority of the users are disposed to hold off. The foundry interests seem to be waiting for a more favorable market and are apparently doing so in the face of being uncovered to a considerable degree for their requirements over the second quarter. The schedule quoted below indicates that the softening has been slight, as the furnace interests are inclined to look beyond the present lull, feeling that the demands being made upon the melters for material will swing the present situation, from an apparently buyers' market, into one on the sellers' side. This attitude is based largely upon the urgent demands being made upon the furnaces for iron already under contract. The range for the week, f. o. b. Buffalo, is substantially as follows:

No. 1X foundry	$17.00 to 17.75
No. 2X foundry	17.00 to 17.50
No. 2 plain	16.75 to 17.25
No. 3 foundry	16.50 to 17.00
Gray forge	16.25 to 16.75
Malleable	17.25 to 17.75
Basic	18.00 to 18.25
*Charcoal	18.00 to 19.00
*Some grades	21.75

Finished Material.—The reports of the mills and agencies in the district indicate that the market remains firm and unchanged as it has done for some time past. Prices are absolutely rigid. Specifications continue to be heavy, in fact they have increased with the passing of the inventory period. Despite heroic efforts on the part of the mills, deliveries still average from four to seven months on the various materials. Practically the only selling being done is at "mills' convenience", and in such cases only to regular contract customers. The demands on the mills exceed their capacity and it is evident that the material being ordered out is not for speculation but going into actual consumption. The effort of the producers is to catch up on back orders rather than to seek new business. It is reported that January was a record month for the jobbers. Owing to the inability of the mills to meet the demands of the users, it has been necessary for the consumers to pay premiums in order to get out their requirements of bars, plates, shapes and structural from the warehouse stocks.

Bids will be opened Feb. 21 for the revised plans of the Hutchinson high school, Buffalo, requiring about 1,400 tons.

Old Material.—The demand for heavy melting steel and other materials in the line slackened during the week, causing a further falling off of the market. The activity has been so light that it is difficult accurately to gage it. The open weather has permitted the yards to forward materials at an otherwise closed period of the year, and the heavy operations in all branches have caused the production of a surplus of scrap. A fair amount of business was transacted in car wheels and clean cast borings. The range, for gross tons, f. o. b. Buffalo, is substantially as follows:

Heavy melting steel	$14.00 to 14.50
No. 1 railroad wrought scrap	14.00 to 14.50
No. 1 R. R. and mch. cast sc'p	13.75 to 14.25
Old steel axles	17.00 to 17.50
Iron axles	24.00 to 24.50
Car wheels	15.75 to 16.25
Railroad malleable scrap	13.25 to 13.75
Wr'ght iron and soft steel turn.	8.25 to 8.50
Cast iron borings	8.75 to 9.00
Low phosphorus steel scrap	17.90 to 17.50
Old iron rails	15.00 to 15.50
Boiler plate, sheared	15.50 to 16.00
Stove plate (net ton)	9.75 to 10.00
Locomotive grate bars	11.00 to 11.50
No. 1 busheling scrap	12.00 to 12.50
No. 2 busheling scrap	10.00 to 10.50

BIRMINGHAM

February Business Disappointing

Office of THE IRON TRADE REVIEW,
Birmingham, Ala., Feb. 11.

Pig Iron. — Further weakening of the local situation is very clearly indicated in recent developments, and the parties most concerned are awaiting results with more or less anxiety. The sales made in the past week are practically of no consequence in the aggregate, with the inquiry submitted in even less definite form than in the week preceding. In the absence of trading, the schedule of prices has not been changed, but it is quite likely that a $13.50 per ton Birmingham basis, for No. 2 foundry, more nearly represents the market at this time than any other figure. As to just what tonnage is available at the figures referred to, and as to the delivery that could be arranged at that price, a definite statement cannot be made. It has been understood of course, for some months, that the majority of the producing interests had but little tonnage to offer in the first quarter, and that in certain cases the entire first half make had been engaged; but in spite of such conditions, stocks were increased in the month of January, and the movement so far in the present month is considerably short of expectations. The aggregate production for January—all local plants taken into consideration, was some 10,000 tons larger than that of December, consequently, stock figures as of Feb. 1 do not necessarily mean a smaller consumption during January than during December; but since Feb. 1, requests that shipment be deferred have been quite numerous, and with a demand, it would probably be shown that the tonnage for re-sale has increased. This last has been sold in scattering lots of $13.25 to $13.75 per ton at Birmingham for No. 2 foundry, and has proven largely a drug on the market even when available at such figures. The strengthening of prices for Tennessee grades is noted, but without any effect on local quotations in competitive territory.

Charcoal iron remains firm, and nothing of importance has been reported relative to the market for basic. Prices as last revised are quoted for the remainder of the first half, but without a criterion of actual values. The schedule of quotations is as below, per gross ton, f. o. b. cars at Birmingham district furnaces, viz.:

No. 1 foundry	$14.00 to 14.50
No. 2 foundry	13.50 to 14.00
No. 3 foundry	13.00 to 13.50
No. 4 foundry	12.50 to 13.00
Gray forge	12.00 to 12.50
Mottled	11.50 to 12.00
Standard basic	14.00 to 14.50
Off basic	11.00 to 11.50
Charcoal	25.00 to 25.60

Cast Iron Pipe.—The placing of some 5,000 tons of water pipe for the requirement at San Diego, Cal., has been deferred, pending a satisfactory arrangement for finances. With this exception, no large contracts are under consideration, but the volume of small orders being placed is fairly attractive. The level of prices is about the same as last reported, with 4-inch pipe firm for such quantities as are being placed at $24.50 per net ton, f. o. b. cars here. For 6-inch and larger sizes, an average of $22.50 per net ton is being received, with $1 per ton extra for all sizes of gas pipe.

Old Material. — New business is scarce and the outlook for an improvement is not encouraging; however, delivery against all contracts is being made at the rate originally agreed upon, and the rate of consumption is not changed. There is practically no demand for cast scrap of any grade, due to the unsettled condition of the pig iron market. The level of quotations is practically the same as last reported, and as all stock accumulations are small, there is apparently no reason why the schedule should not be maintained. Dealers' asking prices for their several holdings are about as below, per gross ton, f. o. b. cars here, viz.:

Old iron axles (light)	$15.50 to 16.00
Old steel axles (light)	15.50 to 16.00
Old iron rails	15.50 to 16.00
No. 1 R. R. wrought	13.00 to 13.50
No. 2 R. R. wrought	11.50 to 12.00
No. 1 country wrought	10.00 to 10.50
No. 2 country wrought	9.00 to 9.50
No. 1 machinery cast	11.50 to 12.00
No. 1 steel scrap	11.00 to 11.50
Tram car wheels	11.00 to 11.50
Standard car wheels	13.00 to 13.50
Light cast and stove plate	10.00 to 10.50

METAL MARKETS

Tin Prices Easier

New York

Feb. 11.

Copper.—The foreign copper market developed weakness today and standard warrants sold at the low levels of last week. Spot sold at £66 2s 6d and three months at £66 7s 6d. In the absence of demand from domestic consumers in this market local quotations also became weak and at the close offerings of electrolytic and lake copper were made at from 15.25c to 15.50c. The leading sellers as a rule are holding at about ¾c higher. It is said that some agencies are booked up for February delivery. There has been no large buying during the past week, this making it difficult to say definitely what an important amount of the metal could be bought at.

Tin.—The London market recovered somewhat from the break that occurred in the early part of the week. Spot tin sold at £224 10s at the close of business yesterday. Today prices became easy again, though, and both spot and futures lost £1. Spot closed at £223 10s and three months at £221 10s. In the domestic market spot and February tin can be bought at 49.37½c and March at 49.10c. On the metal exchange 50 tons of July sold at 48.37½c, port of New York. Consumers have not bought heavily since the decline started. They have displayed some fear of a farther drop in price and bought as a rule nearby positions for early use.

Arrivals of tin this month have about equaled consumption demands.

Lead.—The price of lead has not changed during the past week when other metals have displayed pronounced weakness. Consumers are showing more interest in spring requirements, though it is not believed that much buying has taken place yet. All sellers are quoting from 4.30c to 4.35c in New York.

Chicago

Feb. 11.

New Metals.—New metals are very weak, this conditions being principally reflected in copper quotations. The market quotation on sheet zinc has fallen off to 8.75c, f. o. b. La-salle.

We qubte dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 16⅜c, casting, 16c; smaller lots, ¼c to ¾c higher. Spelter, car lots, 6.85c; lead, desilverized, 4.30c; sheet zinc, 9c, f. o. b. Lasalle in car lots of 600-pound casks; pig tin, 50.12c. Cookson's antimony, 9⅞c; other grades, 9c.

SLIGHT DECREASE

In Unfilled Tonnage of the United States Steel Corporation.

A decrease of 104,796 tons in the order book of the United States Steel Corporation, resulted from the operations of January, according to the monthly statement of unfilled tonnage issued Monday, Feb. 10. The unfilled tonnage on Jan. 31 was then shown to be 7,827,368 tons, compared with 7,932,164 tons on Dec. 31. The result was about what had been expected and while January showed the first decline in monthly tonnage since last March, the reduction is relatively very slight considering the great volume of orders on hand. It is indicated by these figures that the Steel Corporation's new business in January was at a heavier daily rate than had been generally believed since shipments during that period continued at a heavy rate.

Since the plan of making monthly statements of unfilled tonnage has been followed by the Corporation, the statements of business on hand, the tonnage and percentages of increase or decline from the previous month, have been as follows:

Date.	Total.	Change, tonnage.	Change, per cent.
Jan. 31, 1913....	7,827,368	104,796—	1.32—
Dec. 31, 1912....	7,932,164	79,281+	1.01+
Nov. 30, 1912....	7,852,883	258,502	3.40+
Oct. 31, 1912....	7,594,381	1,042,874+	15.33+
Sept. 30, 1912....	6,551,507	388,132+	6.29+
Aug. 31, 1912....	6,163,375	206,296+	3.46+
July 31, 1912....	5,957,079	149,773+	2.58+
June 30, 1912....	5,807,346	56,363+	0.98+
May 31, 1912....	5,750,983	86,983+	1.52+
Apr. 30, 1912....	5,664,885	360,044+	6.97+
Mar. 31, 1912....	5,304,841	149,359—	2.79—
Feb. 29, 1912....	5,454,200	74,479+	1.38+
Jan. 31, 1912....	5,379,721	294,960+	5.71+
Dec. 31, 1911....	5,084,761	942,806+	23.24+
Nov. 30, 1911....	4,141,955	447,627+	12.06+
Oct. 31, 1911....	3,694,328	83,011+	2.25+
Sept. 30, 1911....	3,611,317	84,668—	2.34—
Aug. 31, 1911....	3,695,985	111,900+	3.33+
July 31, 1911....	3,584,085	223,027+	7.16+
June 30, 1911....	3,361,058	247,871+	7.96+
May 31, 1911....	3,113,187	105,617—	3.28—
Apr. 30, 1911....	3,218,704	228,597—	6.63—
Mar. 31, 1911....	3,447,301	46,758+	1.37+
Feb. 28, 1911....	3,403,543	289,624+	9.31+
Jan. 31, 1911....	3,110,919	436,162+	16.30+
Dec. 31, 1910....	2,674,757	85,656—	3.09—
Nov. 30, 1910....	2,760,413	111,536—	3.88—
Oct. 31, 1910....	2,871,949	286,157—	9.12—
Sept. 30, 1910....	3,159,106	379,088—	10.74—
Aug. 31, 1910....	3,537,128	433,803—	10.92—
July 31, 1910....	3,913,931	286,863—	6.72—

Death of George E. Holton

George Edward Holton, president and treasurer of the Bryden Horse Shoe Co., Catasauqua, Pa., died at St. Elizabeth hospital, New York City, Feb. 10, following an operation. Mr. Holton was born in London, Eng., April 24, 1868, and after getting his education in England, came to this country in 1886, being naturalized in the early 90's. In 1889, he became inspector for G. W. G. Ferris & Co., Pittsburgh, in eastern territory, and had charge of the inspection and testing of the cast iron segments used in the construction of the first tunnel under the Hudson river. Mr. Holton first entered the horse shoe manufacturing business in 1892. Besides being president and treasurer of the Bryden Horse Shoe Co., he was president and treasurer of Emanuel & Co. and a director in the Cement National Bank, Siegfried, Pa., and the National Bank of Catasauqua. He was a member of the American Iron and Steel Institute and the Railroad Club, Engineers' Club and Pennsylvania Society of New York City.

Car Buying

Car orders for the week ending Feb. 8 were as follows:

Louisville & Nashville, 500 gondolas to the Mount Vernon Car Mfg. Co.

Pennsylvania Railroad system, lines west, 70 locomotives to the American Locomotive Co. and 30 locomotives to the Baldwin Locomotive Co.

Harriman Lines, 800 work and 500 freight cars to the Bettendorf Axle Co.

American Refrigerator Co., 1,000 refrigerator cars to the American Car & Foundry Co.

Norfolk & Western, 1,000 hoppers and 250 freight cars to the American Car & Foundry Co., 1,000 hoppers to the Pressed Steel Car Co., and 40 Mallet locomotives to the American Locomotive Co.

The Newburg & South Shore railroad, Cleveland, 125 ore cars to the Pressed Steel Car Co., 50 general service cars to Ralston Steel Car Co., and 50 all-steel types to the Standard Steel Car Co.

C. & O., two postal cars to the Pressed Steel Car Co.

The South Buffalo, 30 hoppers to the Summers Steel Car Co.

The Aliquippa & Southern, 20 hoppers to the Summers Steel Car Co.

The Denver & Salt Lake, 100 box and 20 stock cars to the American Car & Foundry Co.

The Donora Southern, 50 coal cars to the Standard Steel Car Co.

Chicago, Rock Island & Pacific, 20 70-foot coaches, 18 70-foot chair cars, 7 60-foot smoking cars, 5 60-foot three-compartment cars, and 10 60-foot baggage cars to the Pullman Co., all-steel construction.

Inquiries as follows are pending:

The Harriman lines, 2,280 gondolas, 3,100 double sheath and 3,050 single sheath box cars, 1,550 36-foot stock and 500 40-foot stock cars, 200 hoppers, 800 work, 500 freight, 203 tank, and 110 caboose cars.

B. & O., 1,000 steel hoppers and 500 refrigerator cars.

The Seaboard Air Line, 1,500 cars.

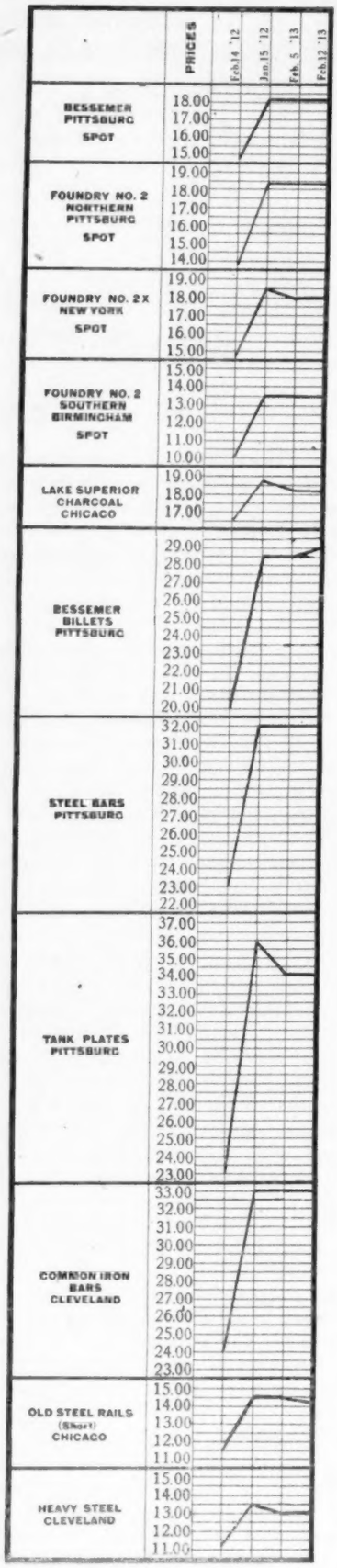
The Norfolk & Southern, 500 cars.

Pennsylvania Railroad system, 5,000 all-steel gondolas, 1,300 woodenside gondolas and 1,000 refrigerator cars. Bids being taken.

Coke is Dull and Prices Low

Pittsburgh, Feb. 12 (By Wire).—Prompt furnace coke is not selling above $2.50, ovens, and that figure seems to represent the market at this time. It is reported that some contract coke has been sold at that figure.

PRICE CHART



Large Water Wheels for Keokuk Power Plant

How They Were Molded and Cast by the Wellman-Seaver-Morgan Co.—Solution of the Transportation Problems

At Keokuk, Ia., the Mississippi river has been harnessed by the Mississippi River Power Co. for the purpose of converting the water power at this point into electric current for the use of the manufacturing industries in this valley, as far distant as St. Louis, which already has contracted for 60,000 horsepower. This project is one of the largest that has been undertaken in this country and ranks high with the foremost plants of its kind in the world. The power developed at the generators will be over 231,500 kilowatts and the capacity of the turbines will be 310,408-horsepower, while the power offered for sale will aggregate 200,000-horsepower. The company has its headquarters in Boston, where its president, Edwin S. Webster, is located, and the chief engineer is Hugh L. Cooper.

The plant consists of a dam, power house, lock, dry dock, sea wall and ice fender, constituting one concrete monolith with a total linear measurement of 13,185 feet, or approximately 2½ miles. The turbines which will drive the generators are of the Francis type, but of special design, with a capacity of 10,000-horsepower each, and an overload capacity of 13,500-horsepower. They have an efficiency of 86 per cent by Holyoke tests and will operate at the slow speed of 57.7 revolutions per minute. The single thrust bearing set above the water will carry rotating parts weighing 550,000 pounds. Each turbine is direct-connected with a generator on a vertical shaft, 25 inches in diameter. The rating is based on a head of 32 feet.

The contract for seven of the fifteen 10,000-horsepower hydraulic turbine units for this plant was awarded to the Wellman-Seaver-Morgan Co., Cleveland, and this equipment now is being built at this company's Cleveland and Akron, O., plants. Each turbine is equipped with a vertical runner, which is the largest wheel of its type ever cast in one piece. Another company which was awarded a part of this contract is casting these runners in seven pieces as the railroads serving this plant are unable to handle them intact, owing to the numerous tunnels on their lines.

A finished wheel in the machine shop of the Wellman-Seaver-Morgan Co., at Akron, is illustrated in Fig. 6, the curved vanes showing the bottom section, while the runner in the vertical position it will assume when installed, is shown in Fig. 1. The castings are gray iron, and thus far three have been successfully cast without loss. The principal dimensions of the runner follow: Outside diameter at the large or bottom end, 16 feet, 6 inches; outside diameter at the small end, 12 feet, 8 inches; length, 11 feet, 2½ inches; weight, rough, 136,000 pounds, and finished, 128,000 pounds. Each runner has 16 vanes and is equipped with a hollow nickel steel shaft, 21 feet, 1¾ inches long; 25 inches outside diameter, and 8 inches inside. The weight of each shaft is 36,000 pounds, and the hydraulic turbine unit complete weighs about 1,000,000 pounds.

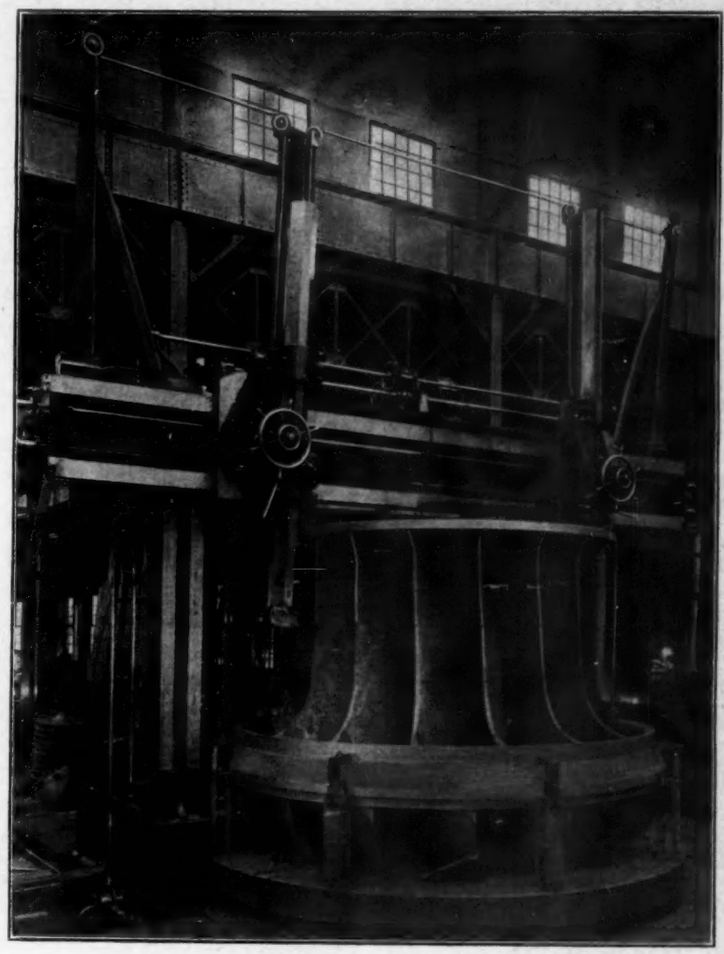


FIG. 1—TURBINE RUNNER, WEIGHING 136,000 POUNDS, BEING MACHINED ON AN 18- TO 31-FOOT BORING MILL

The molds are made in a pit, 11 feet deep and 26 feet in diameter, and extend about 9 feet above the floor. Owing to the immense amount of labor involved in making the molds and cores, assembling, finishing and cooling, the castings are being made at the rate of one every 1½ months. The mold is cored throughout and each of the 16 dry sand cores for the vanes weighs 8 tons. Practically the entire mold is in the drag, the cope consisting merely of a cover. The bottom plate in the pit, on which the mold is made, is machined on both surfaces and is 5 inches thick and 20 feet in diameter. The foundation for the plate is concrete, 16 inches thick.

Binding the mold to prevent the lifting of the cores presented quite a problem, as the surface area of the vanes is approximately 18,600 square feet. This was accomplished successfully, however, by employing 16, 20-inch steel I-beams, which were laid across the top of the mold and were attached to the bottom plate by 32, 3-inch rods, provided with turnbuckles for clamping the mold. The turnbuckles are located slightly below the floor level to avoid interference with operations on the floor when casting. To insure an ample outlet for the gases, 64 vents were provided and the runner trough for the metal extended across the top of the mold and was built be-

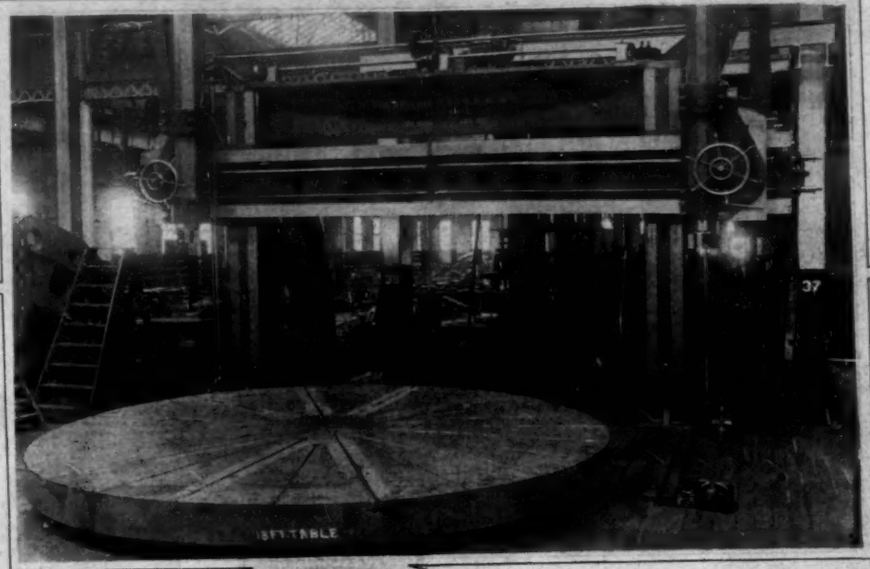


FIG. 2—ANOTHER VIEW OF THE LARGE BORING MILL BUILT ESPECIALLY FOR MACHINING THE LARGE RUNNERS

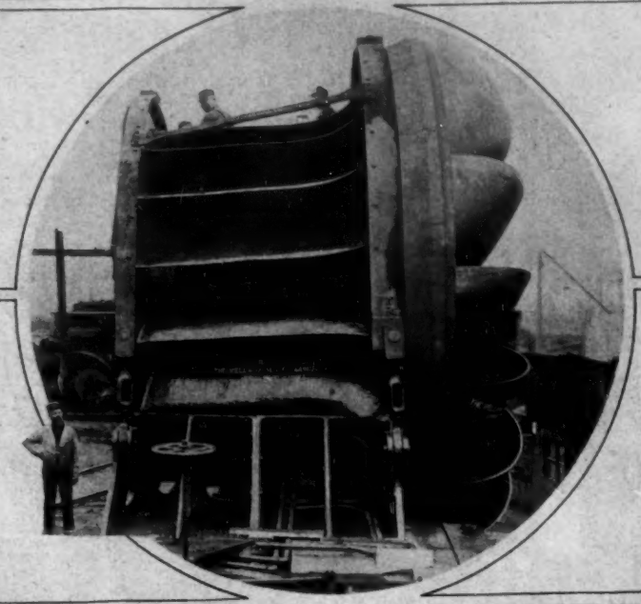


FIG. 3—END VIEW OF THE CAR ON WHICH THE LARGE CASTING WAS SHIPPED

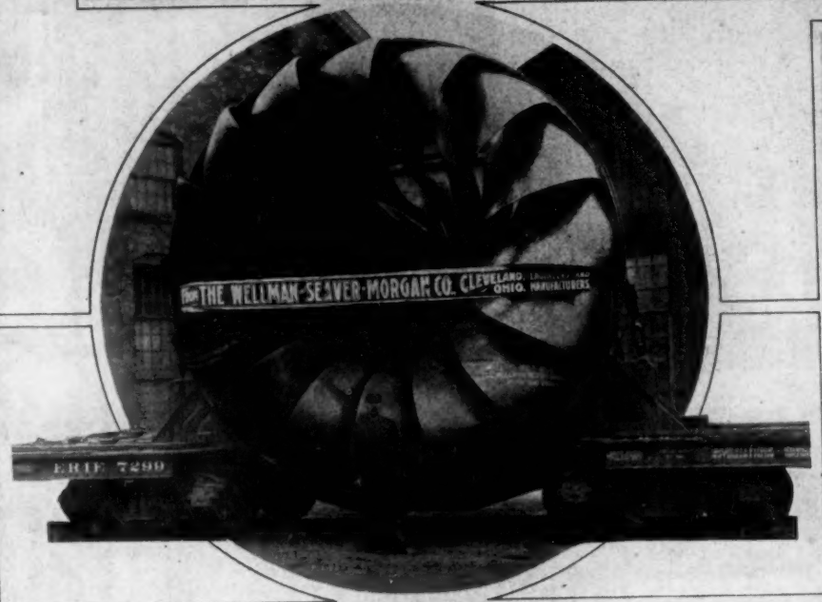


FIG. 4—SIDE VIEW OF CAR, SHOWING THE LARGE END OF WHEEL

FIG. 5—OPPOSITE SIDE OF THE CAR, SHOWING SMALL END OF WHEEL

tween two of the beams, which served to bind the mold. From the runner the iron entered the mold through 12 gates.

As nearly 70 tons of metal were required to pour the mold, one 30-ton receiving ladle, and two ladles of 30 and 20 tons capacity, respectively, were employed. The iron was melted in three cupolas, 60, 76 and 84 inches inside diameter, and the heats were regulated to bring down the iron at practically the same time. The pouring operation consumed about 4 minutes and each wheel was left in the sand about 12 days. The removal of the casting from the pit presented another difficult problem, as the metal, cores and sand weighed approximately 200 tons. As the sides of the flask were cylindrical, rolled steel sections, these were removed first and permitted a large percentage of the rammed sand to fall away from the casting. Whatever cores could be removed were then dug out and after the casting was lightened in this way, it was turned over on its side, as shown in Figs. 7 and 8. This was accomplished by two 30-ton traveling cranes with their chains attached to an equalizer beam, from which the hook was suspended that was attached to the casting. After removing the cores and cleaning one-half of the casting, it was again turned over and the cleaning operation was completed.

To machine the wheels, both top and bottom, an unusually large boring mill had to be employed, and as the equipment of the machine shop was inadequate for this work a new boring mill had to be installed. This machine was designed by the Wellman-Seaver-Morgan Co., and was built complete in its own shops. The mill is one of the largest in the country and has a maximum capacity for handling work 31 feet in diameter and 12 feet high. One of these wheels on the table of the mill is illustrated in Fig. 1, and another view of the boring mill, which clearly shows its size, is shown in Fig. 2. The table of the mill is 18 feet in diameter and weighs 80,000 pounds. The mill is equipped with three traveling heads. The table is driven by a 30-horsepower motor, and a 15-horsepower motor furnishes power for raising and lowering the rail. For operating the drawback on the housings a 10-horsepower motor is provided. The mill can travel on its housings a distance of about 8 feet, 7 inches. This arrangement is shown in Fig. 2, in which the cross rail is located at some distance from the center of the table when the housings are back. This travel gives the machine its maximum capacity for machining work up to 31 feet in diameter, while its rated capacity is 18 to 31 feet. The concrete foundation for the mill is 23 feet wide, 32 feet long, and 12 feet, 2½ inches deep. The weight of the boring mill is 440,000 pounds.

The machined surfaces of these wheels are clearly shown in Fig. 6, but in addition to the finish on these outside diameters, the parts of the vanes above the lower ring, as shown in Fig. 1, were turned to true diameters and then were hand-chipped to a feather edge. By another setting on the boring mill, the lower curved edges of the vanes were machined to true diameters for a distance of 8 inches from the lower ring. The machining operations require two settings of the casting and to avoid any possibility of injury in handling and turning over, a pit, 3 feet deep and 22 feet square, was dug in the machine shop in front of the mill. This was filled with sand and soft cinders and formed a resilient bed for the casting while it was turned over on its side for subsequent rolling over by the two 30-

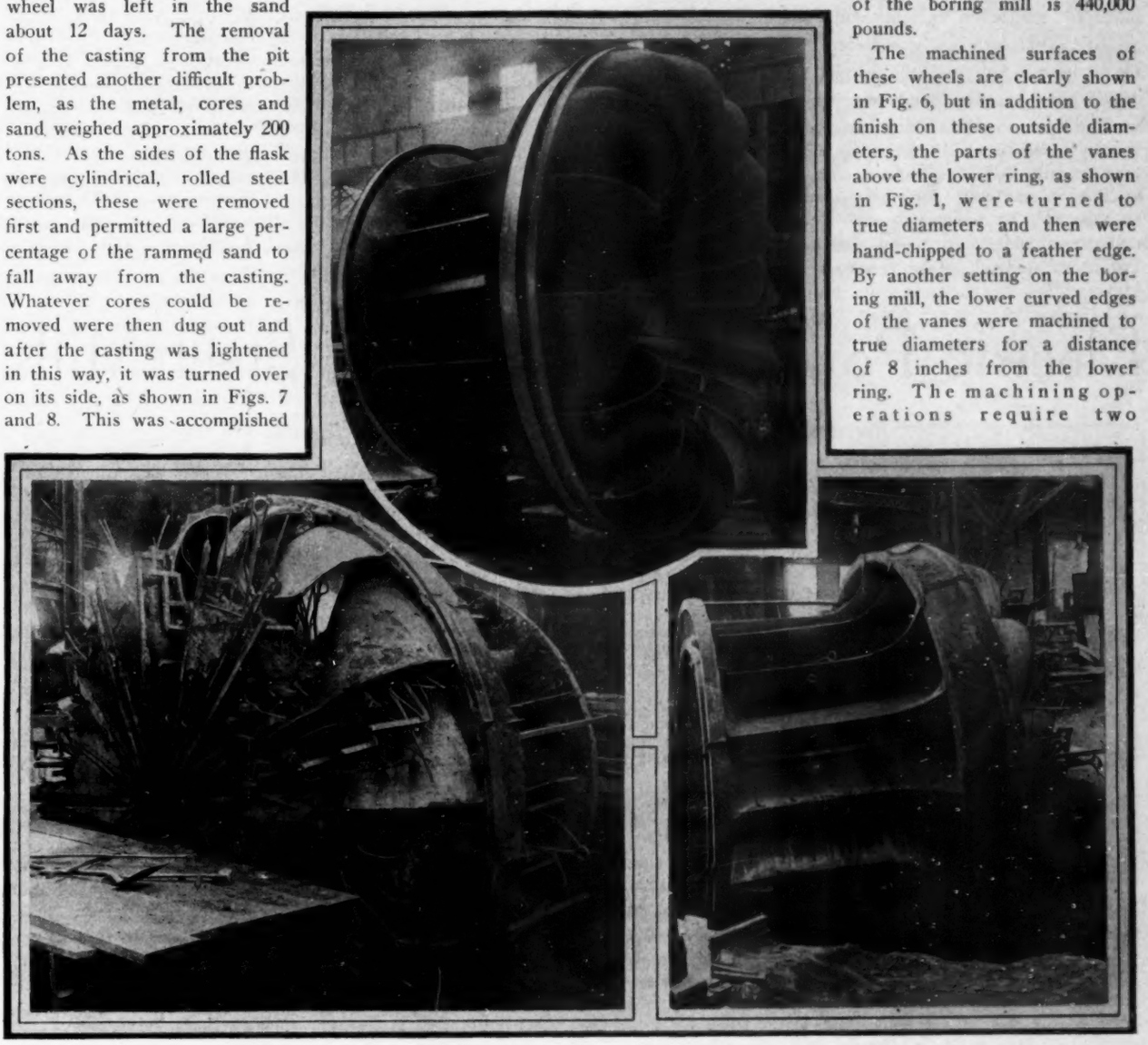


FIG. 6.—ONE OF THE FINISHED WHEELS IN THE MACHINE SHOP

FIG. 7—CLEANING ONE OF THE WHEELS IN THE FOUNDRY

FIG. 8—ANOTHER VIEW OF THE CASTING BEFORE ITS REMOVAL FROM THE PIT

ton cranes in the machine shop. As in the foundry, an equalizer beam was employed in the machine shop to handle the casting and to set it on the boring mill.

The transportation of the wheels to the power plant at Keokuk, Ia., was the next problem. Owing to their size and weight, a special car had to be built, which is shown in Figs. 3, 4 and 5. The contract for transporting all of the parts of the seven turbine units, aggregating 130 carloads, was awarded to the Erie railroad, and the special car of 75 tons capacity for these wheels was built at the Erie shops, Kent, O. As the castings are 11 feet, 2½ inches long, and 16 feet, 6 inches in diameter at their large end, they were loaded on their side on the car in such a way that their widest part would clear 3 feet above the rail. As a result of this method of loading, the height of the casting from the top of the rail was 17 feet, 6 inches.

To throw the entire load onto the trucks, two cast steel saddles were designed and made by the Wellman-Seaver-Morgan Co., on which the entire weight of the casting is carried. These saddles are shown clearly in Figs. 4 and 5. The car also is reinforced by a box type girder, 20 inches wide, strengthened with angles and an extra plate on its bottom side. To prevent the wheel from shifting, two bands were fastened around its circumference on either side, as illustrated in Fig. 5. These bands passed over the machined surface of the casting and were held with pieces riveted to their inner sides as a further precaution against shifting. In addition, the bands were prevented from moving laterally by braces bolted to their sides, as shown in Fig. 3. The bands were tightened by turnbuckles, the lower screws having eyes, which were mounted on pins in the saddles, as shown in Fig. 3.

The first casting was shipped to Keokuk, on Nov. 8, last year, by way of the Erie, Elgin, Joliet & Eastern, Chicago, Burlington & Quincy, and Toledo, Peoria & Western railroads, this circuitous route being necessary to avoid tunnels through which the casting could not pass. One of the interesting features of the three wheels made is the small amount of counterbalancing required. The first wheel made was counterbalanced 1,075 pounds, as shown at *A*, Fig. 5, whereas the third wheel was counterbalanced only 92 pounds.

The Wellman-Seaver-Morgan Co. also is building two 13,400-horsepower turbine units for the Ontario Power Co., Niagara Falls, Ont., each having two spiral, steel cast casings. This contract was secured in competition with foreign builders, the turbines for this plant, now installed, having been built in Switzerland.

Electric Power Distribution in Steel Mills[1]

Recent Developments in the Application and Use of Electricity in Rolling Mills, With Comparative Installation Cost Data

By Stewart C Coey

Electricity was first used in steel mill work for lighting purposes in 1881, when the first arc light dynamo was installed at the Brown, Bonnell & Co.'s plant, Youngstown, O. About 10 years later, the Carnegie Steel Co. installed a 50-horsepower, 250-volt, direct current generator at its Edgar Thomson works, and this machine, which was a large one for its time, furnished power to an experimental crane over the soaking pits in the blooming mill.

From 1892 to 1902 the development of electric motor drive was carried on by the 220-volt, direct-current system. It was quite generally recognized that, due to the fact that steel mills are of necessity spread over large areas of ground, a great saving could be accomplished by the distribution of power by electricity, for driving all auxiliary apparatus. However, during this period there was a constant check on electrical development, as there were neither motors nor control apparatus constructed to meet steel mill conditions. At the end of this period a power plant of 500 kilowatts capacity was considered large for a steel mill. Within the last 10 years a number of the points that retarded the development of the use of electricity in steel mills have been removed by the general advance of the science and by the development of special apparatus to meet steel mill conditions.

Alternating Current Development

The development of the alternating current system mill type motor, steam turbine and the gas engine have all been large factors in the rapid advance of the use of electricity in steel mills.

The use of 220 volts, direct current, necessitated generating units of large size and high cost per unit of power capacity. These generators were driven by reciprocating engines which gave economical conditions of operation over only a small range of load. The economy of reciprocating engines also must be watched closely to keep them up to their maximum efficiency of operation. In distributing the electric power at 220 volts, it was found that about 1,500 feet was as far as power could be economically distributed at this voltage.

The development of the alternating current system made it possible to centralize the generation of power and not only to give the added advantage of centralization, but also to make use of the blast furnaces gases for generating power for all parts of a group of steel making and finishing mills.

When alternating current was first used in steel mills a voltage of 2,200 was adopted in a number of plants. Later developments resulted in the adoption of 6,600 volts, 3-phase, 25 cycles as the standard voltage for steel mill work. At this voltage power can be economically transmitted over distances of about six miles and it is also a good generator voltage. While it is possible to generate electricity at higher voltage than this it is not practical to consider higher voltages in steel mill work, as the large amount of dirt and gas in the air make conditions harder than for ordinary operation.

The three-phase system has become standard because of its good electrical properties in motor opera-

[1]Presented before the American Iron and Steel Institute.

tion and a frequency of 25 cycles has been almost universally adopted in steel mills, as comparatively low speeds are desirable in a large percentage of the motor applications.

The type of prime mover for electric power generation best suited for steel mills is a broad subject and in the majority of cases is a problem that must be gone over carefully for each plant. Wherever possible the sources of energy, which in times past have been allowed to go to waste, are now utilized and turned into electrical energy. The blast furnace gases, which are not used in the stoves, are now used either under boilers to generate steam, which in turn is used to operate blowing engines and steam turbines, or are used directly in gas engines to generate power. The problem of which method to use is very complicated, and depends upon many factors.

On a theoretical basis the amount of gas necessary to generate electricity with a turbine plant, where gas is burned under boilers, is nearly twice as much per kilowatt-hour as in the case of a gas engine installation. Commercial tests indicate that on existing installations, this figure averages about 20,000 B. T. U. per kilowatt-hour for the gas engines and about 30,000 B. T. U. per kilowatt-hour for the turbine installations with gas burned under the boilers. This is an important item, as it affects a conservation of energy. However, there are other items to be considered, that are greatly in favor of turbine plants.

In considering the final cost of power the saving in one item may easily be offset by the increase in another item. It is the item of fixed charges that runs the cost of power up in gas engine plants.

Gas Engine Installations

The initial cost of a gas engine installation per kilowatt-hour of generating capacity installed will vary with the conditions, but a value of $125 per kilowatt-hour is close to the average condition. In the case of a turbine installation with gas-fed boilers, this figure will average about $75 per kilowatt-hour.

The depreciation of gas engines is much higher than in the case of turbine units, due largely to the fact that in the gas engine there is a rapid variation in the stresses on the engine during each cycle of operation, while in the steam turbine there is a constant torque applied. A value of 8 per cent for the gas engine plant, which corresponds to a life of approximately 10 years, and 5 per cent for the turbine plant, which corresponds to a life of approximately 14 years, is probably in favor of the gas engine plant.

The interest on the initial investment can be taken at 6 per cent in each case. If, as is often the case, the company considering the installation has only a limited capital or borrowing capacity and could use the money represented, in extending portions of its producing plant which would net larger returns on the money than 6 per cent, the percentage returns which this extension would bring should be used in place of the actual interest in this special case.

Experience has shown that the maintenance and repair charge is more than double in gas engine plants for the same reasons that the depreciation charges are higher. The operating labor is also higher in gas engine plants than in turbine plants.

If these two items are neglected and simply the interest and depreciation figures are used, with 1 per cent for taxes and insurance in each case, a total fixed charge of 12 per cent results for the turbine plant and 15 per cent for the gas engine plant.

Table I.

	Fixed charges per cent.	Per K. W. of capacity. Plant cost.	Fixed charges.	Power generated per year.	Fixed charges per kilowatt-hour.
Gas engine installation	15	$125.00	$18.70	4,030	0.46 cents
Turbine installation ..	12	75.00	9.00	4,030	0.22 cents

The effect that this fixed charge has upon the cost of power depends entirely upon the load factor. If the load factor of the Youngstown Sheet & Tube Co., is taken as indicative in a measure of the average in steel mills, a figure considerably lower than most comparisons are made on, is obtained. The total present capacity in this plant is 9,000 kilowatts, and during the last year there has been generated 36,000,000 kilowatt-hours or an average of 4,110 kilowatts for each hour in the year. This is a load factor of 46 per cent and incidently it is well to note that this plant is operating with as small an equipment of spare apparatus as it is policy to operate with in a steel mill. This load factor would mean that the fixed charges would be as indicated in Table I.

In other words the fixed charges under these conditions are 0.24 per cent more for the gas engine installation than for the turbine installation.

Commercial tests on turbines show actual operating efficiencies of less than 20 pounds of steam per kilowatt-hour. Power for operating condenser auxiliaries adds about 10 per cent to this, making the operating efficiency 22 pounds per kilowatt-hour of power delivered. The cost of steam generated from coal determined from the average at the Youngstown Sheet & Tube Co., is 10 cents per 1,000 pounds, including boiler house auxiliaries and labor. This would give a value of 0.22 cents per kilowatt-hour as the value of the steam generated from coal for a turbine installation.

From the above it can be seen why in this special case, it is impractical to consider the use of gas engines. If the value of the gas is neglected, a turbine installation using coal as a fuel, at the prices prevailing in this district would generate power under these conditions at a cost per kilowatt-hour less than could be obtained by the use of gas engines. Where the price of coal is high the cost per kilowatt-hour changes and this cost comparison changes in a corresponding degree.

Aside from all cost considerations the main arguments in favor of the steam turbine are the reliability of its operation and its good operating efficiencies over wide ranges in load. Reliability of operation is a factor that means more in steel mill operation than in any other line of industrial work, as a shut down of a few minutes in the power plant is likely to mean a large tonnage loss in one or more of the departments.

A source of power which has been developed in late years is found in the use of exhaust steam from large non-condensing, reversing engines which are quite common in a number of steel mills. This steam is collected in regenerating tanks and used to produce power with low pressure turbines.

At the Youngstown Sheet & Tube Co., there is a 1,500-kilowatt mixed pressure turbine operating on the exhaust from the blooming mill reversing engine. This installation

furnished during the last year 5,000,000 kilowatt-hours energy to the switchboard, from what was previously waste energy. After deducting the amount of power represented by the extra amount of steam used by this turbine in generating the 2,000,000 kilowatt-hours which it generated in this time on high pressure steam, over what would have been used by a turbine designed especially for high pressure steam and the energy equivalent of the added back pressure on the reversing engine, there is left approximately 2,500,000 kilowatt-hours, which represents the actual amount saved by the installation. One point in favor of this type of an installation is that it requires no extra boiler capacity and tends to keep the load on the boiler house more uniform, as the machine is taking high pressure steam only when the mill engine is down.

The ease with which alternating-current stations can be run in parallel makes it possible to utilize these so-called waste energy sources and still operate the various sources of power in electrical connection.

The Switchboard

In considering the problem of electric power generation and distribution the connecting link or switchboard is apt to be neglected. The proper design of the switchboard often determines the success or failure of a power installation. It is only due to the development of the oil switch that it is possible to handle large alternating currents at high voltages with safety.

After getting the electricity to the point at which it is desired to use it, the problem of the proper method of distribution in the mills presents itself. On account of the insulation problems in the mills proper, it has become customary to use 220 volts, either alternating current or direct current, for all mill motors except the largest. Large roll motors and pump motors are built for 6,600 volts, but it is not generally considered good practice to use 6,600 volts direct on motors of less than 500 horsepower. For use on all constant speed work the alternating current motor is desirable, and for this type of work it is customary to use induction or synchronous motors, depending on the special conditions of service.

Whether alternating or direct current should be used on the roll tables, cranes and other steel mill auxiliaries, is a problem that has been seriously discussed among steel mill electrical engineers, and opinions are greatly divided. If 220-volt, alternating current motors are used, it is only necessary to use alternating current transformers to step-down the voltage from 6,600 to 240 volts, but these transformers have to be large in kilovolt-amperes capacity, as these auxiliary motors run underloaded, for a great portion of the time, giving a poor power factor for the combined load.

If 220-volt direct current motors are used it is necessary to use motor generator sets to transform the alternating current into direct current, with a loss of power at this point of about 12 per cent more than in the alternating current transformers which have an efficiency of about 98 per cent.

Cost of Direct and Alternating Current Systems

The initial cost of the two systems is about the same, being if anything slightly in favor of the direct current system. For instance on a certain contemplated system the average cost of alternating current motors and control equipment was found to be $25 per horsepower, while the direct current motors and control equipment averaged $21 per horsepower, showing a difference of $4 in favor of the direct current equipment. On this auxiliary apparatus a portion of it is always under light load or not operating at all. As an example, in a blooming mill, certain tables will operate at various points throughout the mill as the steel goes through, but never all at at one time. On cranes it seldom happens that all the various motions are called into action at one time. As a matter of fact it is found that this auxiliary apparatus gives a load in kilowatts that is approximately one-quarter of the total rated horsepower of the motors. Motor generator sets cost about $14 per kilowatt of capacity, more than transformers, which figure would be offset by $10 additional cost of the alternating current motors and control, over the cost of the direct current motors and control, as it is only necessary to have 1 kilowatt of motor generator set capacity for each 4 horsepower of auxiliary motors installed. The main point where the alternating current motor saves is in the elimination of the commutator, but this is offset to a certain extent by the fact that the air gaps in alternating current motors must necessarily be less than in direct current motors. An actual comparison of the air gaps in a comparative line of alternating current and direct current mill motors shows that the direct current motor has on an average twice the air gap that the alternating current motor has. This results in a large increase in bearing trouble which offsets greatly the saving obtained by the eliminating of the commutator.

Control of Motors

However, the point on which the whole question hinges, is, in the writer's opinion, the fact that the control of the direct current motors has been developed better and is simpler than that for the alternating current motors. By the developments of the last year it is possible to use automatic control on all the direct current auxiliary motors at about the same cost as for usual controllers, and to get a control that is both simple and effective. The saving gained by automatic control, by reducing the number of breakdowns, both electrical and mechanical, caused the Youngstown Sheet & Tube Co. to continue the use of 220-volt direct current auxiliary motors in the new developments. The same reasons apply on crane motors with the additional fact that dynamic braking cannot be obtained in a satisfactory manner if alternating current motors are used on crane hoists. By the use of dynamic braking hoist controllers and the elimination of the mechanical brake, at least one-half of the troubles with cranes are at once eliminated.

Aloxite Plant for the Carborundum Co.

Owing to the steady increase in the demand for its various products, the Carborundum Co., Niagara Falls, N. Y., again has been compelled to enlarge its plant. Two reinforced concrete buildings are in process of construction, one of which is 300 x 90 feet and four stories high, while the other will be the same size, but divided into two and four-story sections. The four-story building will be the paper and cloth plant and will be used for cutting, packing and rolling the paper and cloth, garnet paper and cloth and aloxite cloth. The two and four-story building is the combination kiln structure and will be devoted to the manufacture of aloxite wheels. The great demand for aloxite for malleable and steel castings has necessitated these additions. Both buildings can be extended to a length of 800 feet if necessary. The Carborundum Co. reports that sales of 1912 were the largest in the company's history.

Electric Crucible Furnace for Refining Steel

Four Connected Baths Are Utilized With Electrodes of the Same Metal as That Being Refined—Novel Heat Regulation

An electric crucible furnace for refining steel has been designed by M. Appel, Johnstown, Pa. It is styled a furnace of the crucible type because the body or brickwork containing the metal bath has the appearance of a series of connected crucibles. Drawings for a 15-ton furnace are shown in the accompanying illustrations. Fig. 1 is a horizontal section which clearly shows the four connected baths or crucibles. Fig. 2 is a vertical longitudinal section and contains an elevation of the tapping side, while Fig. 3 shows a vertical section of the furnace and also the tilting mechanism.

It will be noted that the four main baths of metal are provided with wrought iron or steel. Each main bath is provided with an operating door, and tapping holes, connected with pouring troughs, direct the metal to the central pouring spout as shown in Fig. 1. The entire metal charge may be poured by tilting the furnace at a sufficient angle.

The Resistors or Electrodes

Partial partitions of highly refractory material separate the four main baths from each other and in these partitions channels are provided for the resistors or heaters. It will be noted that the resistors are of reduced section, as compared with the main bath and only the upper portion of

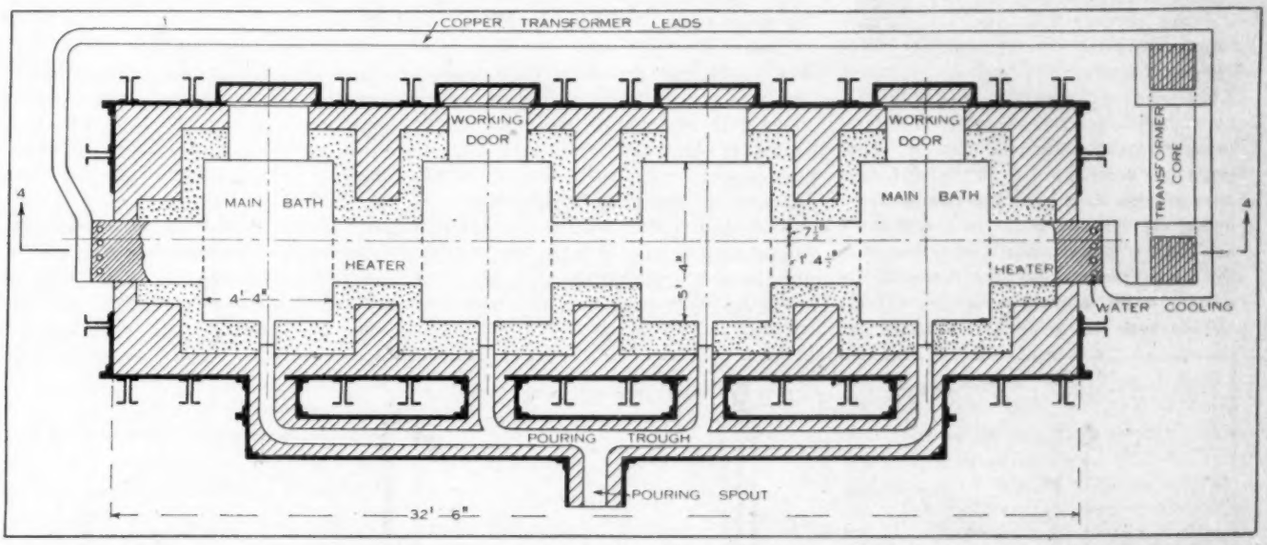


FIG. 1—HORIZONTAL SECTION OF AN ELECTRIC CRUCIBLE FURNACE ON THE LINE 2 2 OF THE VERTICAL SECTION.

and are connected to resistors or heaters. The end resistors which pass through the furnace walls might be termed the electrodes and are connected to copper transformer leads, which in turn are connected to the transformers. The main baths and heaters are surrounded by a refractory lining encased in the steel furnace shell. The furnace is supported by curved girders and rollers, which revolve on stationary supports, as illustrated in the vertical section, Fig. 3. The electrodes which enter the ends of the furnace, should be of the same character of metal as that being refined and for the manufacture of crucible or a similar quality of steel, the electrodes are made of these baths are in metallic connection. Similar partial partitions separate the end baths of the series from the electrodes. To facilitate making repairs, the resistors and main baths are wide at the top and slope at an angle of 45 degrees to the bottom of the crucible. At the points where the iron or steel electrodes enter the furnace, they are provided with pipes for the circulation of cooling water. These resistors or electrodes should be cooled sufficiently to prevent melting their outer ends, while their inner portions may be molten in the normal operation of the furnace. That section of the electrode which extends from the furnace wall should be of such size as to carry the current without undue heating and to reduce to a minimum the heat losses from the metal bath. Copper leads are connected to the electrodes and as many turns as necessary are used in the secondary of the transformer so as to insure a high power factor. Therefore, the molten metal charge, the electrodes and the copper leads constitute a closed heating, secondary circuit. The transformer is well insulated and is supported by a part of the structural framework. When the electric current passes through the furnace, the resistors or heaters, being of small cross section as compared with the main bath, are heated to a high temperature and impart their heat mainly by conduction and natural circulation to the metal in the main bath.

It will be noted that the resistors or heaters are located at one side of the center plane of the furnace and owing to this construction, the cross-section of metal in the resistors changes for each position of the furnace. If tilted in the direction shown by the full line arrow in Fig. 3, the metal section of the resistor increases, and if tilted as shown by the dotted line arrows, Fig. 3, the metal section of the resistor decreases. If for example a certain voltage is applied across the furnace terminals and if the furnace is tilted in the direction as shown by the full line arrows, thereby enlarging the cross-section of

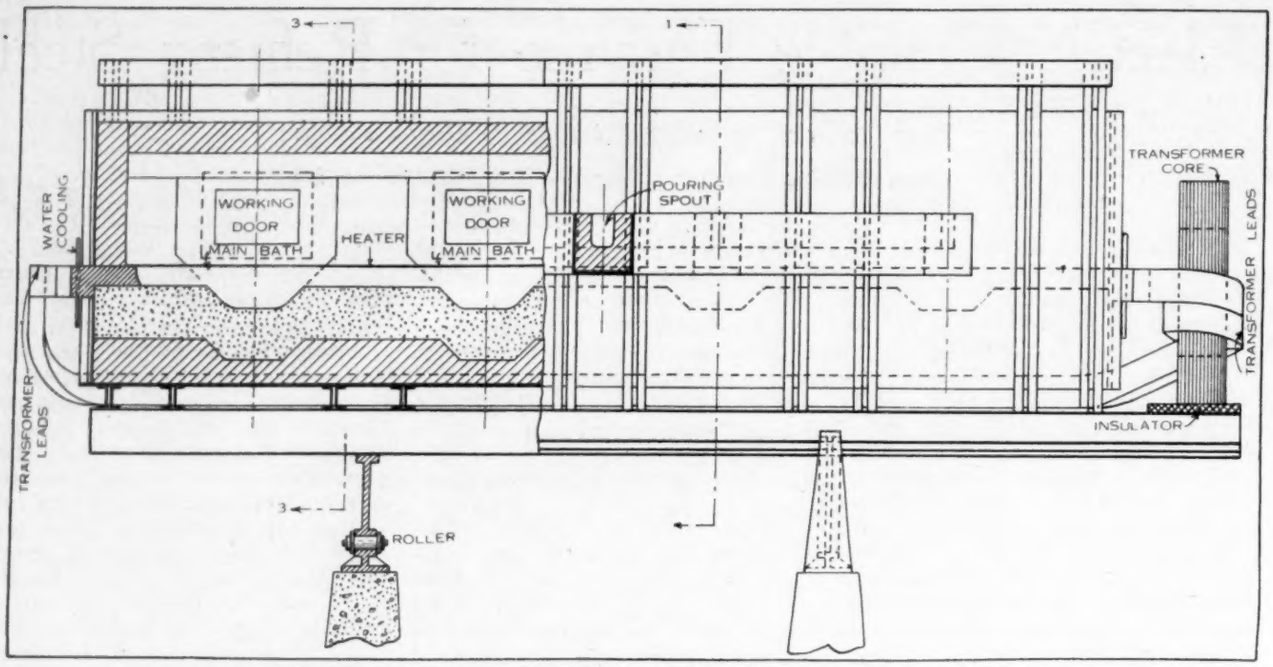


FIG. 2—VERTICAL LONGITUDINAL SECTION AND ELEVATION OF TAPPING SIDE OF THE ELECTRIC FURNACE

metal in the resistor or heater, the resistance is lowered, thereby increasing the current flow and the furnace temperature is raised as the heat effect varies as the current squared. Therefore by merely tilting the furnace forward or backward, the temperature of the furnace can be regulated as desired. By tilting the furnace in one direction any temperature up to the melting point of the furnace can be obtained and by tilting in the reverse direction, the temperature can be reduced as low as desired.

This type of furnace eliminates the expense of carbon or graphite electrodes and there is no danger of contaminating the bath by dropping the carbon electrodes into it. The local heating is less pronounced than with the arc type of furnace, as the heat is generated practically throughout the entire charge.

As compared with the induction furnace, a high power factor is obtained easily, due to the fact that a copper conductor is used to connect the furnace electrodes and as many turns as necessary may be employed in the secondary of the transformer to insure a low magnetic leakage thereby providing a high power factor. As a high power factor is obtained, overhead charges for electrical equipment will be less than that for induction furnaces of corresponding capacity.

As shown in Figs. 2 and 3, the furnace is supported upon curved beams or girders, which revolve on a series of rollers. The roof is located at a considerable distance from the top of the metal charge to provide for ample space for operating the bath and to permit of the installation of

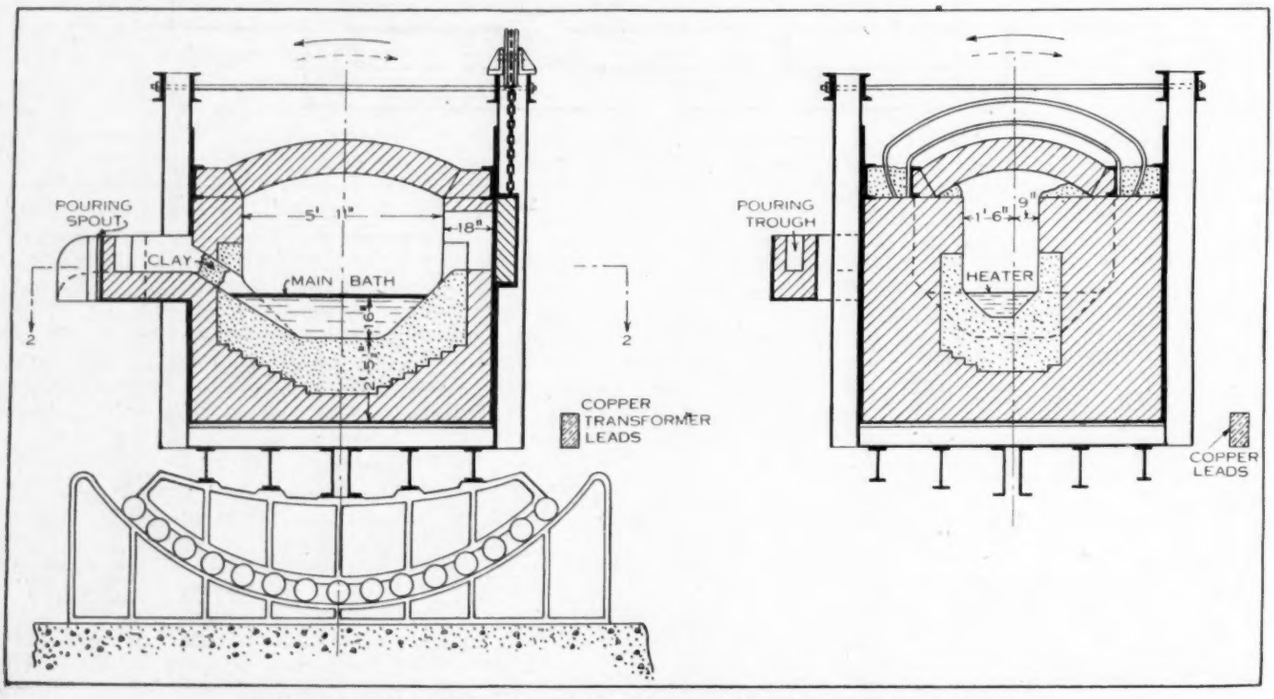


FIG. 3—VERTICAL AND CROSS-SECTION OF ELECTRIC REFINING FURNACE

the furnace doors. That portion of the furnace which will be subjected to the greatest wear and which will require most frequent repairs is the refractory lining of the resistors or heaters. To facilitate repairs the roof directly over the resistors, as illustrated in Fig. 2, is so constructed that it may be easily lifted off by a crane.

This furnace is essentially of the refining type as molten metal is employed for the charges, no cold material being used. For the production of the highest quality steel, it is advisable to use molten metal from the basic open-hearth and to dead-melt it in an acid-lined furnace. The molten metal is charged through the furnace doors, the same as in open-hearth practice. Doors are provided on the charging side of the furnace for additions and for making furnace repairs. The power required will be greater than that necessary for the operation of an arc furnace and less than that required by an induction furnace.

For melting in non-ferrous metallurgical operations, the construction of the furnace is practically the same as that employed for refining steel. For the extraction of zinc from its ores, ferro-silicon or some other similar material would be employed as a resistor. The resistor or heater in this case would extend to the bottom of the metal bath and would be about one-half the cross section of the metal on the main bath. The iron or other resistor used would be approximately constant in amount and having much less resistance than the charge of zinc ore and coke, practically all of the heat would be generated in the resistor and a uniform working temperature could be maintained easily. The metal resistance first would be brought up to the proper working temperature and then a mixture of zinc ore and coke would be charged. For the manufacture of various carbon compounds, such as carbon bisulphate, etc., a molten resistor of ferro-silicon would be employed. Carbon would be charged on top of the molten resistor, heated to the proper temperature and then sulphur or any other material may be introduced into the furnace and the desired compounds could be obtained.

The principal features of this furnace can be summarized as follows:

It is heated by the resistance of the metal charge, similar to the induction and other types of resistance furnaces.

The temperature can be regulated by tilting the furnace.

Owing to the use of copper conductors connected with iron electrodes, the furnace will have a high power factor.

As water-cooled steel or iron electrodes are employed, the difficulties involved in the use of carbon electrodes are avoided.

A Code of Ethics for Engineers

The American Society of Mechanical Engineers has drawn up a proposed code of ethics along much the same line as that adopted by the American Institute of Electrical Engineers. Some of the main provisions of this code follow:

"It is the duty of engineers to satisfy themselves to the best of their ability that the enterprises with which they become identified are of legitimate character.

"The engineer should consider the protection of a client's or employer's interests his first obligation, and if any other consideration interfere with his meeting the legitimate expectation of a client or employer, the engineer should so inform him.

"An engineer cannot honorably accept compensation from parties having conflicting interests.

"An engineer called upon to decide on the use of anything in which he has a financial interest should make his status clearly understood by those employing him.

"An engineer in independent practice may be employed by more than one party, when the interests for the several parties do not conflict.

"Before any consulting engineer takes over the work of another consulting engineer he should be entirely satisfied that the client has good and sufficient reasons for making the change.

"Consultations should be encouraged in cases of doubt or unusual responsibility, but consulting engineers should not say or do anything to impair confidence in the engineer in charge unless it is apparent that he is wholly incompetent or the interests of the profession so require.

"Engineers acting as experts in legal and other cases, in making reports and testifying, should not depart from the true statement of results based on sound engineering principles.

"An engineer should make every effort to remedy dangerous defects in apparatus or structures, as failure of any engineering work reflects upon the whole profession.

"It is desirable that an engineer undertaking for others, work in connection with which he may make improvements, inventions, plans, designs or other records, should first enter into an agreement regarding their ownership.

"If an engineer uses information which is not common knowledge or public property, but which he obtains from a client, the resulting plans should be regarded as the property of his client.

"If a consulting engineer uses only his own knowledge, or information which is public property in the absence of an agreement to the contrary, the results in the form of inventions, plans, designs, or other records should be regarded as the property of the engineer and the client or employer should be entitled to their use only in the case for which the engineer was employed.

"All results accomplished by an engineer in the form of inventions, plans or designs outside of the field of engineering for which a client has retained him, should be regarded as the engineer's property.

"When an engineer or manufacturer builds apparatus from designs supplied to him by a customer, the designs should not be duplicated by the engineer or manufacturer for others.

"Any engineering data or information which an engineer obtains from his client or employer, or which he creates as a result of such information, must be considered confidential by the engineer; and while he is justified in using such data or information in his own practice, as forming part of his professional experience, its publication without express permission is improper.

"A client does not acquire any right to the plans made by a consulting engineer except for the specific case for which they were made, unless there is an agreement to the contrary.

"The engineer should endeavor to assist the public to a fair and correct general understanding of engineering matters and to discourage the appearance of untrue statements on engineering subjects.

"Technical discussions and criticisms of engineering subjects should not be conducted in the public press,

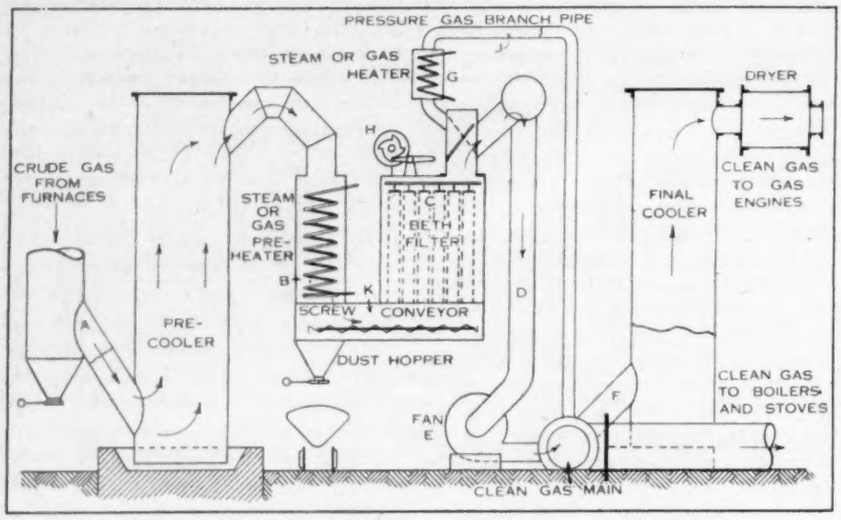


FIG. 1—DIAGRAMATIC VIEW OF BLAST FURNACE GAS CLEANING PLANT

but before engineering societies or in technical publications.

"The engineer should take an interest in and assist his fellow engineers by exchange of general information and experience and should endeavor to protect all reputable engineers from misrepresentation.

"The engineer should take care that credit for engineering work is attributed to those who are the real authors of such work.

"Criticism of the work of one engineer by another should be broad and generous with the facts plainly stated.

"The attitude of an engineer toward contractors should be one of helpful co-operation. An engineer should hold a judicial attitude toward both parties to a contract.

"An engineer in responsible charge of work should not permit non-technical persons to overule his engineering judgment on purely engineering grounds."

Cleaning Blast Furnace Gas

By James A. Seager

In both England and Germany, plants for cleaning blast furnace gas by the Halberg-Beth process are being installed, some of these having a capacity for cleaning 650,000 cubic feet of gas per hour. It is claimed that by this process almost every vestige of dust is removed from the gas, thereby greatly increasing the efficiency of the engines operating on blast furnace gas fuel. This gas cleaning apparatus, which is been introduced in England by the British High Power Gas Engine Co., Ltd., London, is shown diagramatically in Fig. 1. The gas is delivered from the blast furnace through the pipe, *A*, into a water-sealed cooler, after which it passes to a superheater, *B*, from which it is delivered to the Beth filter chamber, *C*. From this chamber the gas is exhausted through the pipe, *D*, by the fan, *E*, and is delivered to the blast main supplying the stoves and boilers or to the main, *F*, which delivers it to the final cooler and dryer before passing to the gas engines.

The filter is cleaned at regular intervals by automatically cutting-out the suction of the system by the reversing valve, *G*, thereby permitting clean gas at a high temperature to flow in a reversed dirction, through the pipe, *J*, into the filter chamber. Simultaneously a shaking device, *H*, is operated, which causes the dust to fall into the collecting chamber, *K*, from which it is discharged by a screw conveyor into a dust hopper. This operation, which continues 15 to 20 seconds, is repeated automatically at intervals of about four minutes. A cross-section of the gas cleaning plant is illustrated in Fig. 2. The plant is divided into independent units, each of which may be cut out to meet the existing requirements. Approximately 1 horsepower is required for each 10,000 cubic feet of gas cleaned.

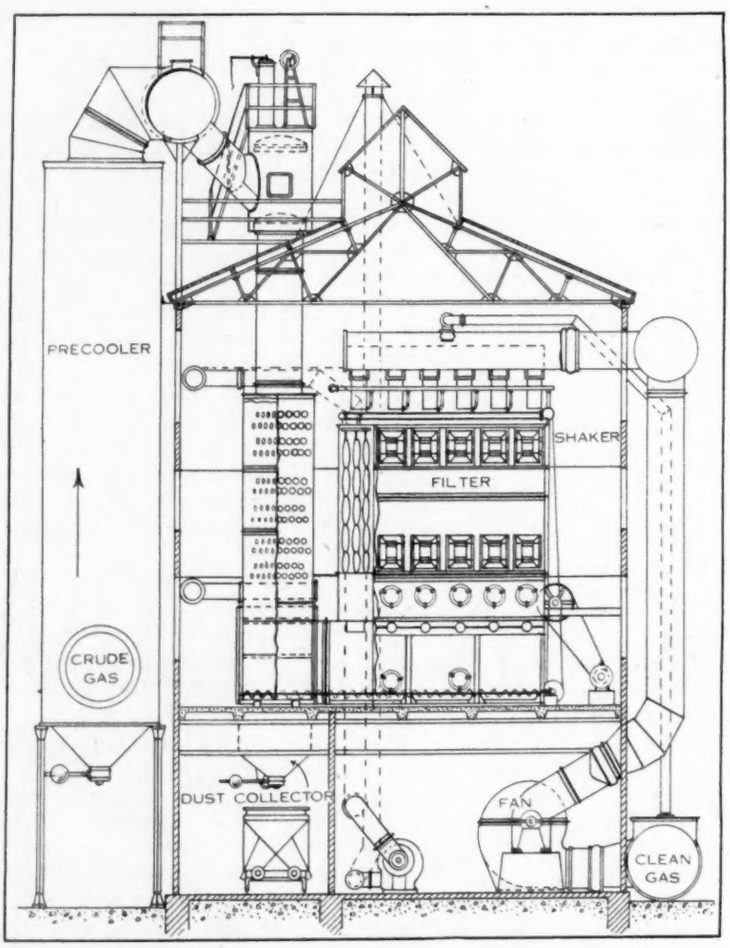


FIG. 2—SECTIONAL VIEW OF BLAST FURNACE GAS CLEANING PLANT

The Norfolk & Western railway is building steel freight cars of 90 tons rated capacity with a sufficient factor of safety so that they may be overloaded 10 per cent. These cars were designed especially for service in the Pocahontas coal fields and at the Norfolk & Western's deep water terminal near Norfolk, Va.

Production of Steel Ingots Without Defects

Hadfield, Talbot and Thermit Processes Briefly Reviewed—Importance of New York Meeting

Steel manufacturers from all parts of the United States, and several from Europe, have signified their intention to attend the meeting of the American Institute of Mining Engineers, to be held in the Engineering Societies building, New York City, Tuesday to Friday, Feb. 18 to 21. The subject for discussion that is proving so attractive is that of making sound steel ingots which will be considered at both sessions on Wednesday. This problem will be taken up under the following subdivisions:

Is the present method of getting rid of the pipe by cropping a safe and reliable device for making sound steel?

Is it desirable to increase the amount of metal arbitrarily cropped off the top of an ingot and, if so, what would be a fair excess price for cropping off 20 per cent?

Is it commercially practicable to make ingots without pipes or blowholes and what additional expense of manufacture would be justified to accomplish this result?

What process for making pipeless ingots seems the most promising for commercial success, and why?

Carbon Segregation

This subject has received more than usual attention during the last twelvemonth, in view of the large number of rail breakages in this country which occurred during the winter of 1911 to 1912. In the report of his investigation of the broken rail that caused the Great Northern wreck, near Sharon, N. D., Dec. 30, 1911 James E. Howard engineer-physicist of the United States bureau of standards, called attention to the carbon segregation, which was pronounced. The range was from 0.45 to 0.77 per cent, the lower carbon metal having been found near the surface of the rail. Subsequent determinations, using chips taken nearer the top surface of the head, showed that the minimum carbon content at that point was 0.37 per cent. The ingot from which this rail was made was reported to contain 0.53 per cent carbon, yet, notwithstanding this fact, one part of the rail contained practically 100 per cent more carbon than another.

At the International Congress for Testing Materials, held in New York City, in September, 1912, Henry D. Hibbard consulting engineer of Plainfield, N. J. said that the cure of blow-holes in ingots is to have in the metal just before the final additions, a reasonable amount of dissolved gases and of oxide of iron and then to add at the end enough solvent, silicon or its equivalent, to keep in solution the gases still in the steel until it is frozen. He added that the cure of piping ingots is by compression during solidification to keep pace with the relatively greater loss of volume of the interior as compared with the exterior parts of the ingot.

Compressing the Ingots

Mr. Hibbard suggested a cure for segregation which may be effected in part by increasing the rate of compression just before final solidification, so that some of the still fluid metal will be expelled at the top from the body of the ingot. The ingot is to be cast in a collapsible mold, large end up. The press for this work should be horizontal-acting, and after the ingot mold is placed therein, it should compress the ingot continuously, though slowly, until freezing is complete. A number of plans proposed for preventing piping provide either compression in a press or rolls, or the introduction of a piece of metal to fill the pipe. The mold containing the ingot should be placed in a slow-acting horizontal press, about 15 minutes after teeming and the upper third of the ingot should be slowly pressed by lateral compression until the hole is solid. Just before solidification of the last of the metal, the press should be speeded-up so that some of the segregated impurities will be forced out at the top. The rate of travel of the presses should be such as will keep the level of the molten metal always at the top of the ingot. Mr. Hibbard estimated that the cost of pressing with a good plant should be much less than that of discarding 30 per cent of the ingot or even half of this amount of steel.

At the same meeting, Robert Job showed a large number of rail specimens which clearly illustrated numerous characteristic fractures and he found that one rail which developed an internal transverse crack contained 1.62 per cent manganese, although the heat average approximated 0.80 per cent. A similar crack was noted in a 110-pound open-hearth rail, in which the manganese also was excessive, amounting to 2.62 per cent, whereas the heat average was approximately 0.90 per cent. He stated that the abnormal composition was because of failure in manufacture to properly mix the manganese added in the ladle. Mr. Job's paper was published in THE IRON TRADE REVIEW, Sept. 12, 1912.

In THE IRON TRADE REVIEW, Sept. 5, 1912, page 439, was published a paper presented by Capt. Robert W. Hunt, before the International Congress for Testing Materials, entitled "How to Insure Soundness in Steel Rails". Capt. Hunt said that without sound and homogeneous ingots, it is impossible to produce sound and homogeneous rails. The most important unsoundness first will be in the center of the ingot and last in the center of the rails produced from it, where it is frequently impossible to detect it without destroying the rail. He added that experience has proved that rails made by the basic open-hearth process are more liable to have interior pipes and segregated spots than Bessemer rails, due principally to the fact that the open-hearth ingots are larger than the Bessemer ingots and in addition, the size of the heats prevents slow casting. However, the smaller contained percentage of phosphorus in open-hearth steel lessens the danger from its segregation, but the greater carbon content made possible by the low phosphorus, increases the segregation of that element. Capt. Hunt expressed the opinion that until sound ingots are commercially made, the safest procedure is to reject arbitrarily the upper part of every ingot for rail rolling.

The Hadfield Process

At the 1912 meeting of the Iron and Steel Institute, Sir Robert Hadfield described a new process for producing sound steel with a comparatively small waste. This method was described in detail in the Oct. 3, 1912, issue of THE IRON TRADE REVIEW, page 624. The process, briefly, is as follows:

The fluid steel in the upper part of the ingot is maintained in the liquid condition by combustion, in contact with or in close proximity thereto, during the cooling and shrinkage of the metal in the lower part of the mold, of solid fuel, such as char-

coal. A blast of compressed air is employed which is impinged on the fuel while it is directly or indirectly supported by the metal below a layer of fusible material, such as cupola slag, which is interposed between the metal and the fuel. This slag largely prevents the radiation of heat. On a 15-inch mold, the layer of slag is about ½ inch in thickness and on top of this the charcoal is placed. The sand or other suitable top to provide the feeding head is inserted in the flask placed on top of the ingot mold. While the ingots can be cast large end down, this process is practiced on ingots with the large end up and Sir Robert Hadfield is of the opinion that this is the better method. With the small end forming the bottom portion of the ingot, cooling takes place more quickly, causing the steel to congeal at this point and thereby reduces the amount of feeding required later from the upper portion of the mold. On ingots weighing 5,000 pounds, the discard did not amount to more than 7 per cent and it was estimated that on a large output, the saving by this process will average from $2 to $3 per ton.

At the same meeting another process for producing sound ingots was described. This was introduced by Benjamin Talbot about 18 months ago and consists of making the steel sound, with the exception of the central pipe, by the use of aluminum or silicon. The ingot is quickly stripped and is allowed to stand in the soaking pit for a short time. While the center is still liquid, it is sufficiently compressed by a few passes in a cogging mill to reduce its sectional area. The resulting semi-cogged ingot is free from cavity and is absolutely sound. When the ingot is taken from the soaking pit, the pipe is well-developed and the central portion of the steel is free to flow. When placed on its side at the rolls, the steel will flow into the cavity before pressure is applied while the gases travel along the frozen, internal side of the ingot. As soon as sufficient pressure is applied, these gases must be forced into the steel itself and remain there in solution or escape into the air. This process was described in greater detail in the Oct. 17, 1912, issue of THE IRON TRADE REVIEW, pages 732 and 733.

In addition, anti-pipe thermit is being used quite successfully in a number of foreign steel works to eliminate piping segregation, etc., and at the meeting of the American Institute of Mining Engineers, in addition to the papers by Benjamin Talbot, on "The Production of Solid Steel Ingots" and by P. H. Dudley, on "Piping and Segregation of Ingots and Ductility Tests for Open-Hearth Steel Rails", Dr. E. A. Beck will discuss "The Use of Anti-Piping Thermit in Casting Steel Ingots".

The American manufacturers, on the other hand, have done a large amount of experimental work to insure the production of sound ingots and a new process, the invention of a noted American steel works engineer, may be reported at this meeting.

A Study of Slag Enclosures in Steel

The subject of "Slag-Enclosures" formed the text of an interesting paper by Dr. Walter Rosenhain, of the National physical laboratory, Teddington, Eng., presented at the International Congress for Testing Materials. The report was not based on personal investigations made particularly for the purpose of the congress, as circumstances prevented this. It was stated, however, that the subject has received considerable attention from other investigators and that, in certain directions, important progress has been made, particularly in France, America and England, thus making a large amount of material available. The paper treated the subject under the following headings:

1.—Nomenclature.

2.—The study of the constitution of the enclosures.

3.—The mode of formation and origin of the enclosures and suggested methods of prevention.

4.—The distribution of the enclosures in steel and their effects on the properties of steel.

5.—Suggested directions for the further investigation of the subject.

Under the first heading, nomenclature, the author directed attention to several points which have been raised pro and con as to the advisability of using the term "slag-enclosures," this term having been somewhat adversely criticized. Other writers have suggested various names, among them being "solid non-metallic impurities in steel" and "sonim," a word coined from the latter expression. For several reasons these terms are believed to be equally objectionable and Dr. Rosenhain adheres to the expression "slag-enclosures" or merely "enclosures."

Constitution of the Enclosures

The study of the constitution of the enclosures has received valuable contributions from Matweieff and Levy. The former deals with the methods available for identifying the various forms of enclosures found in metallographic sections of steel, and the latter has undertaken the synthetic study of some of the more important enclosures. Matweieff's method consists in producing synthetically enclosures of known constitution and studying their behavior under various reagents, after which the results are applied to the examination of the enclosures found in practical examples.

Synthetic enclosures were prepared by filling small holes, drilled in wrought iron, with the powdered substance, plugging the hole with iron and heating the piece. Systematic examination with the ordinary fluid reagents used in metallography showed that, with the exception of the sulphides, the enclosures were equally unaffected. The gaseous reagents, hydrogen and superheated steam, were then tried and the use of weak, organic, liquid acids was also found desirable for distinguishing between the sulphides and silicates. According to their behavior under these reagents the enclosures may be divided into three classes:

1.—Stable bodies which are not acted upon either by hydrogen at 300 degrees Cent., by superheated steam or by weak organic acids. These are the silicates of iron and manganese.

2.—Bodies which are reduced to the metallic state by the action of hydrogen at 300 degrees Cent. and are acted upon by steam but are unaffecte by weak organic acids. These are the oxides of iron and manganese. Oxide of manganese is not reduced by hydrogen when by itself, but in the presence of iron oxide a reduction of both metals takes place. On repolishing a sample after heating in hydrogen, the regions previously occupied by oxides appear as bright metal, like the ferrite of the surrounding iron or steel, but the presence of manganese may be detected by etching with a dilute alcholic solution of ferric chloride. Iron free from manganese is only slightly colored, but the reagent produces rapid coloration if manganese is present.

3.—Not affected by hydrogen or steam, but attacked by weak organic acids, such as tartaric acid. These

are the sulphides of iron and manganese; the former is rapidly colored by this acid while sulphide of manganese is only slowly attacked. The behavior of the sulphides which are mixtures or solid solutions of the iron and manganese sulphides, is not considered by Matweieff, but requires particular study from this point of view. Metallographic workers will appreciate the value of this means of determining the nature of the enclosures present in micro-sections. At the same time it should be remembered that the use of gaseous reagents at high temperatures is a somewhat cumbrous manipulation, and it is hoped that future research will find a simpler means.

D. M. Levy has studied particularly the sulphides of iron and manganese and the silicates of these two metals. He has done this largely by preparing these bodies synthetically and studying them through thermal and microscopic observations. While this work is far from conclusive, it already indicates that results of the highest importance are to be anticipated by a further pursuit of this branch of investigation. An important question concerning the nature and constitution of the enclosures found in steel is that of their solubility in hot or molten steel. The question of such solubility at extremely high temperatures must materially affect the mode of action of the additions made to steel in the furnace or in the ladle.

Formation of Enclosures

The conclusion has been reached by H. D. Hibbard that the formation of the enclosures is due almost entirely to the "washing" action of the additions, principally of manganese, in combining with the dissolved oxides, sulphides and silicates which are present in the steel at the end of the melting process before the manganese is added. J. F. Stead holds that the silicate enclosures are due to oxidation of manganese and silicon occurring during the passage of the molten steel through the air, in passing from the ladles into the molds. Hibbard rejects this view as improbable. As regards sulphides, facts of this kind are already well ascertained, but as regards the silicates, the matter is still somewhat an open one.

An important question in this connection arises as to the solubility or otherwise of iron oxide in molten iron or steel. If the freezing point of pure iron is materially affected by the presence of oxide in contact with the molten metal, it is justifiable to conclude that there is a corresponding degree of solubility, but if the freezing point is not affected, the probability of any sensible solubility is remote. The facts at present known suggest that the effect of oxide in lowering the freezing point is not large.

Conclusions

It appears that the present knowledge of the mode of formation of the enclosures is insufficient to permit formulating rules for their elimination. It is evident, however, that oxygen and sulphur are principally responsible for their presence in finished steel and that manganese tends to reduce the quantity of enclosures and to lessen their harmful nature. In molten steel the sulphides and silicates of manganese are probably present as liquid globules and to eliminate these the globules should be caused to coalesce so that they will form a few large ones instead of numerous small ones, and time should be given for them to rise to the surface.

Micuo-Motion Study

Micro-motion study, a most important advance in scientific management, furnishes the missing step in determining industrial methods of least waste.

When there have been wisely selected units for measuring, methods of measuring, and devices that would make the measuring inexpensive, rapid strides have been made.

The units that can be measured by the method of micro-motion study are many, but length of motions, time of motions, and amount of rest for overcoming the fatigue of motions are the most noticeable.

The new process of motion study carries the timed sub-divisions to such extremely small units that the results are very different from the results of ordinary time study done with a man's eye, stop watch and memory, and are comparable to the results obtained in biology with the microscope, and in astronomy by aid of the telescope.

Furthermore, this method permits taking a motion apart and studying the parts separately, anywhere at any time, even by one who did not observe the process.

The necessity of and advantages to be derived from timing workmen with a view of obtaining most economical results was thoroughly appreciated by such brilliant investigators as Adam Smith. However, these early investigators, who recognized the great need of accurate timing, entirely missed the two fundamental points of time study, and the results of their methods of timing are of little value; because,

The timing will not be fundamentally correct unless the observed workman cooperates with the timer.

The synthesized time units will not prophesy the quantity of work that any given workman can continuously do and thrive under, because there is no recognition of, nor allowance for rest periods to overcome the fatigue resulting from the work.

It is here that the work of Dr. F. W. Taylor marks the beginning of the turning of the timing of operations from an art to a science.

His work was revolutionary. He first recognized that the working time units must be separated from the resting time units; he first pointed out that different kinds of work required certain different percentages of rest according to the kind and nature of the work done.

It is interesting to note that Taylor also calls attention, in his book "Principles of Scientific Management", to the fact that co-operation is one of the fundamentals of scientific management; and while it would perhaps seem obvious that full co-operation of the workman who is being timed and the worker who is timing him would be necessary, as great an investigator as Coulomb entirely missed this point when he recommended that the worker be timed secretly.

No worker of the New England Butt Co. is timed who does not desire to be timed, and no man unless he is willing to be micro-motion studied or photographed.

Micro-motion study furnishes a means of teaching the unskilled man the very best method of the most skilled workman.

Operations carried on so rapidly that they cannot be followed by the eye can be observed as if they had been performed slowly, and each elementary motion analyzed and studied.

The unit items of the elementary motions are recorded accurately and the most economical can be selected from a large number of records.

Micro-motion study permits the creation of measurable standards of best methods.

Micro-mtion study provides a means that the government can use in collecting and recording the best practice in foreign countries in such form that our workmen and our industries can learn the best methods of all lands without individual travel and personal experience in the land of such best practice.

Not only does it record the best practice, it also proves it, and furnishes the best method of teaching the best practice, not only as a whole, not only of each minute elementary time unit, but of each motion.

[1]From a paper presented by J. G. Addrich at the annual meeting of the Efficiency Society.

Rail Research By Railroads and Producers[1]

A Brief Report of the Results Obtained by the Joint Efforts of Steel Rail Users and Manufacturers

By M H Wickhorst

Several years ago the number of rails in the United States that failed to give normal service or broke under moving trains became alarmingly large. The worst condition was reached about 1905. The circumstances so agitated the executive officers of the railroads that the matter was made the subject of an investigation by the American Railway Association.

Reliable general statistics are not available to show numerically the exact condition as regards rail failures, but an idea may be obtained from the report of one road that, of a lot of 10,000 tons rolled and put in the track, 22 per cent were removed during the first year, on account of depressions in the head. When broken apart, the majority of these rails showed interior openings in the head running lengthwise of the rail, as shown in Fig. 1. Happily that extreme state of affairs has passed.

Railroad Conditions

The wheel-loads of the rolling equipment, locomotives, passenger cars, and freight cars had been rapidly increasing for 20 years or more. H. V. Wille has shown that the average total weight on drivers increased from about 69,000 pounds in 1885 to over 180,000 pounds in 1907, and reached a maximum of 316,000 pounds in that year. The average axle load increased from 22,000 pounds in 1885 to 48,000 pounds in 1907. Since then the axle loads have still further increased.

During the same period the weight of rail, in main-line track, increased from about 65 to 75 pounds per yard to 85 to 100 pounds per yard, which are also now the prevailing weights. The moments of inertia increased from about 15 to 20 to about 30 to 45. At the time the American Society of Civil Engineers adopted standard sections, in 1893, 80-pound rails were just coming into use. Considered as a girder the strength of the rail increased about at the same rate as the axle load increased, the unit stress in tension remaining about the same, or even decreasing slightly. The unit-stress in compression, however, increased almost as the axle load increased, as the average width of rail head increased only from about 2⅜ inches to about 2¾ inches, and the diameter of the wheels has remained about the same.

Steel Mill Conditions

While the railroads were thus busy increasing the capacity of their motive power and cars, the steel mills were likewise endeavoring to obtain increased tonnage. These efforts took the form of eliminating unnecessary delays, installing larger converters and more powerful machinery, and using larger ingots, and, sometimes, of allowing less time for the chemical reactions. At the height of the tonnage endeavor in the rail mills, about five years ago, there was considerable rivalry between the different mills to produce the greatest tonnage, and it reached a condition that might almost be termed madness; that had only secondary regard for the quality of the product. The purchaser had the choice of buying rails as made by the mills or going without them.

FIG. 1—SPECIMEN OF SPLIT HEAD

Recently, however, there has been a happy change, so that quality is being given due consideration, and mutual consultations are taking place. The change was due, presumably, to the chastening effect of slack orders for rails and the present state of public opinion.

In 1906 the American Railway Association took the matter in hand through its committee on standard rail and wheel sections, which committee made a report in 1908 submitting some new designs for rail sections and also offering some tentative specifications. The matter was then referred to the American Railway Engineering and Maintenance of Way Association, now called the American Railway Engineering Association.

The prevailing type of failure seems to have been the split head, generally termed piped rail; the rails developed internal cavities, mostly in the head, running lengthwise of the rail for distances of several feet or more. It seems to have been the prevalent opinion that this and other types of failure, as well as poor wear, were due partly to internal structural defects and partly to finishing the head of the rail at too high a temperature. It was argued that the flanges were too thin, cooling quickly in the rolling, and that a temperature necessary to finish the flanges properly left the temperature of the head unduly high.

The remedy suggested was to make the flanges thicker, thus allowing of more uniform finishing temperature throughout the section.

Cause of Split Heads

Recent work, which will be referred to later, indicates that from the standpoint of safety high temperature of rolling is not detrimental, and that few if any failures can be attributed to this cause. I am referring now to splithead failures in Bessemer rails, as shown in Fig. 1, as this was the prevailing type of failure, and open-hearth steel had not yet come into extensive use. The recent work has also shown that such failures occur almost entirely in badly segregated metal from the top part of the ingot, attended perhaps with laminations and slag seams. Under pressure, the top of the head of the rail spreads sideways, and as the interior of the head with such metal as referred to cannot likewise extend laterally it develops a crack, which grows until failure results. Of course increase of pressure would hasten the development of such failures.

It had indeed been more or less

[1]Presented at the International Congress for Testing Materials.

definitely recognized that split heads occurred mostly in rail from the upper part of the ingot, but the blame was placed on internal structural defects. The trouble is now well-known, it being due to the large mass of blow-holes and pipes in that part of the ingot; the role of segregation was but vaguely recognized. In Europe the part played by segregation had probably been more definitely worked out years before, but the results of that work seem to have been overlooked, or at any rate their importance not fully appreciated, in America.

Arrangement of Recent Work

As stated, the matter was turned over in 1908 to the American Railway Engineering Association to continue the work of investigation. This association appointed a committee, which continued the investigations started by the committee of the American Railway Association, and which also made a co-operative arrangement with the manufacturers of steel rails by which the latter furnish the material and facilities of their mills for research work, and the railroads furnish the engineer to conduct the tests under the direction of their committee and publish the results. The writer was honored by selection for the position of engineer of tests and entered upon his duties Feb. 1, 1910.

An investigation was made of ingots of Bessemer steel of various sizes from 12 x 12 inches to 25 x 30 inches at the bottom, all about 5 feet high, weighing from 2,000 to 10,000 pounds. As part of the investigation a chemical survey was made of these ingots to determine the distribution of the various elements, particularly as influenced by the size of the ingot.

The distribution of phosphorus in the various ingots is shown in Fig. 2; it may be said that carbon and sulphur show a similar distribution, differing of course as to the amounts in the various regions. The diagrams indicate that the regions of concentration of the phosphorus, figured as a percentage of the volume of the ingot, increase as the size of the ingot increases; the analyses also indicated that the maximum concentration of phosphorus in the segregated region increases as the size of the ingot increases.

The regions of negative segregation, that is, decrease of phosphorus below the average of the steel as poured, are also of considerable interest. The top of the ingot shows considerable decrease of the phosphorus, carbon and sulphur, and this decrease extends downward along the sides a greater distance in the larger ingots. The analyses also showed that the amount of the deficiency in phosphorus increased in a general way the size of the ingot increased. This means that the outer parts of the section of a rail made from the upper end are softer than the average of the steel from that ingot, and this has been found true of rails examined by means of tensile tests. There is also a region of milder negative segregation in the interior and lower part of the ingot.

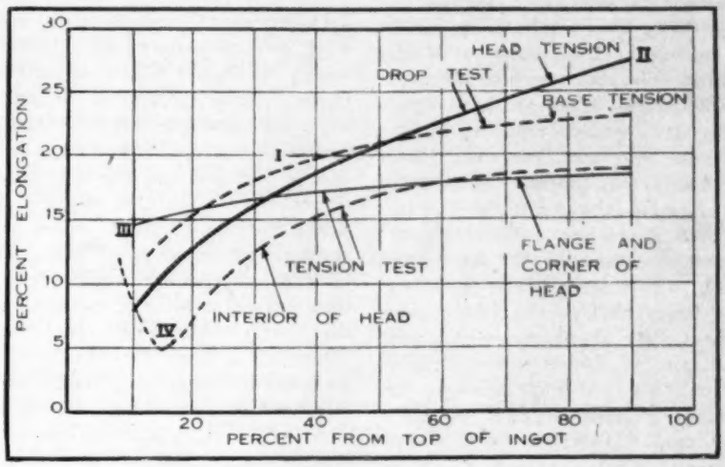


FIG. 3—DUCTILITY OF RAILS IN DROP TEST AND TENSION TEST COMPARED

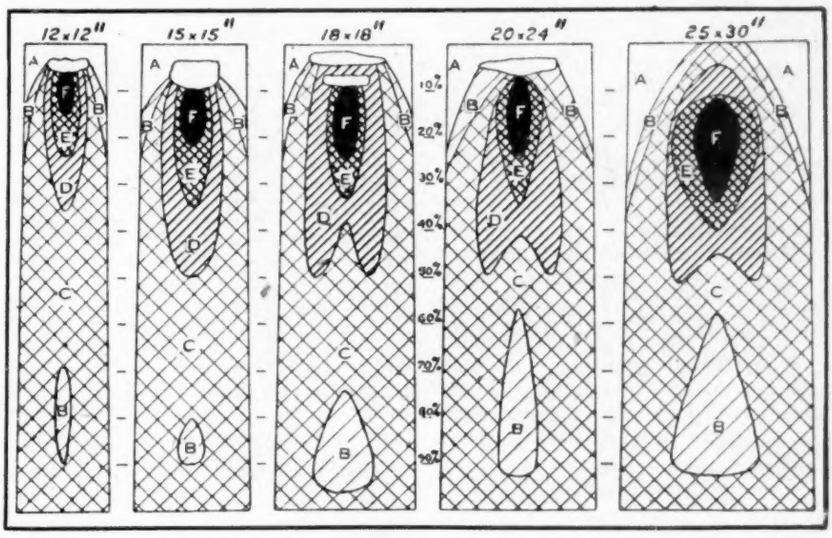


FIG. 2—DISTRIBUTION OF PHOSPHORUS IN INGOTS OF DIFFERENT SIZES

Phosphorus percentages—*A*, below 0.70; *B*, 0.70 to 0.80; *C*, 0.85 to 1.05; *D*, 1.05 to 1.35; *E*, 1.35 to 1.75; *F*, above 1.75.

Ductility of Rails

A comparison of the ductility of rails made by the ordinary Bessemer process, as measured in the drop test and in the tension test, is interesting. Fig. 3 is given to show the comparison; the distance from the top of the ingot in per cent of weight is plotted horizontally, and the per cent elongation is plotted vertically. The elongation in the tension test was measured on a test piece, ½ inch in diameter with a gage length of 2 inches. The elongation in the drop test was measured by placing gage marks near the middle of the length of the piece of rail on the side in tension, 1 inch apart, for a distance of 6 inches, and the length of the space which stretched most when broken under the drop was taken as the measure of the ductility of the rail in the drop test. Two curves are given showing the ductility of the rail bar in the drop test, one with the head in tension and the other with the base in tension. Two other curves are given showing the ductility of the rail bar in the tension test, one representing the interior of the head near its junction with the web and one representing the aver-

age of the flange and the upper corner of the head, as the results from these two locations were about the same.

In the tension test, the exterior metal, as represented by the flange and the corner of the head, shows good ductility along the whole rail bar, although there is a general increase down the ingot, from about 14½ per cent elongation at 10 per cent from the top, to about 18½ per cent elongation at 90 per cent down. The results from the interior of the head near the web, however, differ considerably from these; there is fair ductility near the top; the elongation then drops off to less than 5 per cent at about 15 per cent from the top, and it then rises again and in the lower part of the rail bar averages slightly above the results from the exterior of the section.

In the drop test with base in tension, the elongation runs from 12 to 24 per cent. With the head in tension there is also a continuous increase in going down the ingot, but the differences in elongation are much greater, 8 to 27 per cent. In this respect there is considerable similarity between the ductility measured in the tension test of samples from the interior of the head, and the ductility as measured in the drop test with the head in tension. It would seem, therefore, that this latter test may be more useful to ascertan the ductility of the interior metal than the drop test with the base in tension, as is usual in inspection work.

Influence of Temperature of Rolling

An investigation was made to determine the influence of the temperature at which the steel is rolled, on the properties of Bessemer rails. A series of five ingots from one heat of Bessemer steel was rolled into rails, all in similar manner except as to the temperature at which they were rolled. One ingot was rolled cold and the temperature was increased with the succeeding ingots, finally rolling the last ingot very hot. The influence of the temperature as ascertained by these tests may be summed up as follows:

The ductility and deflection in the drop test were influenced little, if any, by the rolling temperature. The number of blows that it took to break the rails in the drop test was uninfluenced by the temperature of rolling. The yield-point and tensile strength in the tension tests were influenced little, if any. The elongation in the tension test decreased some as the temperature increased. The influence of temperature showed most prominently in the tension test in the reduction of area, which decreased as the temperature of rolling increased. The size of the grain, as shown by the microscope, increased as the temperature increased.

Plan of Work

The general plan of our research work has been to direct attention to some one item which enters as a factor in the properties of the finished rail, and attempt to obtain definite information concerning its influence by the experimental method of obtaining as great a range as practicable in the one item under consideration, but leaving all other conditions as near alike as possible. It is thus hoped to aid in establishing in the course of time the metallurgical principles and laws that apply to the manufacture of steel rails, for the purpose of designing specifications and rail sections that will give uniformly safe rails of good wearing qualities, and a minimum cost. The condition of co-operation in this work existing between the railroads and steel manufacturers is very gratifying, and may confidently be expected to work to the best interests of the public, the railroads and the steel mills.

Development of Electrical Transportation

The perfecting of high voltage, direct current, generating equipment and motors has lead to a more general adoption of high voltage systems for traction use. This tendency toward high voltage systems has been accelerated by the successful building of small and large unit transformers of higher efficiency than had been previously obtainable. In the production of high voltage direct current, it is customary to connect two motor generators or rotary converters in series and by that means deliver 1,200 to 1,500 volts.

During the past year, the Piedmont Traction Co., Southern Pacific Railway Co. and the Oakland, Antioch & Eastern Railroad Co. have placed orders for Baldwin-Westinghouse locomotives. The Southern Pacific Co. has ordered 12 locomotives for use in freight haulage and switching service. In addition to the above, the New York, New Haven & Hartford Railroad Co. has increased its equipment by the addition of 39 locomotives, of which three are for either alternating or direct current and the remainder for single phase.

New Catalogs

BUCKET CONVEYORS. — The C. W. Hunt Co., New York City, has issued a comprehensive catalog devoted to its bucket conveyor, which is designed for the handling of coal, ashes, cement, etc. Attention is directed to the varied applications of this conveyor. This catalog contains many illustrations of installations and diagrams showing general layouts.

GRAPHITE PRODUCTS. — The Joseph Dixon Crucible Co., Jersey City, N. J., has issued a very complete catalog illustrating and describing a wide variety of graphite products, including crucibles for founders, devices for the introduction of phosphorus into molten metal, black lead, flake and lubricating graphites and numerous other similar articles.

PNEUMATIC HAMMERS.—An illustrated catalog, describing pneumatic riveting, chipping and calking hammers, has been issued by the Chicago Pneumatic Tool Co., Chicago. Descriptions and dimensions of various styles of hammers are given and also a table of dimensions of rivet sets and other tools for use with the hammers. The catalog closes with a short article on the care of pneumatic hammers, pointing out many ways in which they are often thoughtlessly abused.

POWER HAMMERS.—Two types of power hammers are illustrated in a catalog issued by Beaudry & Co., Boston. One of these hammers is designed especially for the use of railroads, machine shops and general jobbing shops, while the other is recommended for the use of manufacturers of cutlery, files, shovels and agricultural implements. All Beaudry hammers are started, stopped and regulated by a foot treadle extending around the base of the machine. The frame is cast in one piece and occupies comparatively small floor space. These hammers are built in seven sizes with rams from 25 to 200 pounds in weight.

ROTARY GAS PRODUCERS.—A gas producer, which embodies the unique construction of two vertical shells rotating in opposite directions, is described and illustrated in a 24-page catalog issued by the Chapman Engineering Co., Mt. Vernon, O. The fuel in this producer rests directly upon the revolving fire bed and the rotation of the upper and lower sections of the fuel chamber serves to compact the entire body of the charge and prevents the formation of blowholes or the scaffolding of the heated coal on the walls. These producers have been installed in the works of the American Steel & Wire Co., the Youngstown Sheet & Tube Co. and the Illinois Steel Co., each installation having been made after careful and severe tests.

FANS, BLOWERS AND STEAM TRAPS. —The American Blower Co., Detroit, has issued printed matter describing its line of steam traps, dry kilns, ventilating fans, unit heaters and mechanical draft apparatus. An 80-page, illustrated catalog is devoted to the problem of equipping kilns for the purpose of drying timber products. A prefatory article in this catalog explains the theory of lumber drying by the moist air process. This is followed by a detailed description of natural circulation kilns of various types. In a bulletin presenting steam traps, illustrations are given of many kinds and the booklet closes with a convincing array of testimonial letters. A 24-page booklet illustrates and describes ventilating fans, with or without direct-connected motors for use with the fan rotating in a vertical or horizontal plane, as needs may dictate. The unit heater is said to be a compact and ideal heating apparatus for small or medium sized factories.

MINING NEWS FROM THE IRON RANGES

State Mines Profitable

A report has been issued by John P. Funk, in charge of the mineral department of the state auditor's office, St. Paul, Minn., detailing the iron mining activities during 1912 on lands on the Mesabi range held in fee by the state of Minnesota.

The report states that there are now 25 mines on state lands developed to the shipping stage, although there are at present 173 state leases in force, the lands covered by 48 of which have been proven to contain deposits of commercial ore. Seventeen of the 25 mines shipped during 1912. During 1913, it is expected, six additional mines will make their initial shipments, their development having reached the shipping point. In 1912, three state mines, the Scranton, the Morton and the Woodbridge, entered the shipping list for the first time. All are near Hibbing.

The following table, prepared by Mr. Funk, shows the ore shipments from state mines during the last year:

Mines.	Gross tons.
Grant	399,848
Fay	262,073
Scranton	254,500
Hanna	211,827
Wacoutah "A"	118,961
Woodbridge	68,220
Cavour	47,925
Madeira	46,494
Wacoutah "B"	9,812
Morton	5,947
Missabe Mountain	5,591
Leonidas	5,494
Section 17	3,971
Seville	3,325
Virginia Silver	15,647
Alberta (Lily)	1,454
Sullivan and Hale	507
Total	1,460,593

"While the 1912 output of 1,460,593 tons was the record," continues the report, "the largest previous season's shipment, in 1910, having been about 1,100,000 tons, it may strike the average person that even the 1912 output was not so large as the enormous tonnage admitted by the owners of the state leases would admit.

"It must be borne in mind, however, that it takes much time to open up a new mining district or range, and it has well been said that a decade is required to accomplish such an undertaking. It is only a little more than 20 years ago that the first iron ore was mined on the Mesabi range. But the time has now arrived when the leaseholders of the larger state mines must very materially increase their output. There are, for example, several mines whose tonnage is nominally in the neighborhood of 20,000,000—probably much more than that amount of ore will eventually be mined from them—the leases on which have but 29 years more to run.

"There are conditions surrounding a dozen or more of the largest of the state mines that will compel the leaseholders to greatly increase their annual shipments from now on; in fact, it is reported on good authority that the allotment agreed upon for the coming season's shipment from one of the mines by the leaseholders is 900,000 tons. And indications point to substantial increases in shipments all along the line, supplemented by the impetus that will be given production by the entrance into the shipping list of six or seven additional new mines.

"There is every prospect that the output in 1913 will reach a mark somewhere between 3,000,000 and 4,000,000 tons and the trust funds of the state enriched by $1,000,000.

"In view of the fact that thousands of acres of state lands lying within the mineral area have never been explored and the further fact that on such lands on which ore has been developed, a greater tonnage than now known will be eventually mined, it is no wonder that men who have given the matter much thought and who have looked far into the future, prophesy that the trust funds of the state of Minnesota will some day reach stupendous proportions from iron ore royalty income."

Wants Tax on Outgoing Ore

Representative W. T. Bricker, of Belding, Mich., has issued a statement explaining his position in regard to a tonnage tax on iron ore, which is now under consideration by the Michigan legislature. "I am not in favor of a tonnage tax as it is generally understood," says Mr. Bricker, "but I have a bill which I may or may not present, which will put a tax on all iron ore shipped out of the state to be manufactured elsewhere. It will be intended to foster the manufacture of iron in Michigan. It will not touch the copper mines. In any event, I would favor a copper tax not on tonnage but only on net earnings. Mines not earning anything would not be taxed."

Wage Increases for Mine Employes

The recent increase in wages voluntarily granted employes of the United States Steel Corporation will especially benefit the poorer paid employes of the Oliver Iron Mining Co. and other subsidiary companies on the Minnesota and Michigan iron ranges. There are about 9,000 employes of the Oliver company who will receive the increase. This includes surface and underground labor, shopmen, carpenters, car repairers, painters and trackmen, as well as employes of the offices.

The schedule of the amounts which the various branches of employes will receive has not been fully completed, but it is estimated that between $400,000 and $500,000 will be distributed annually by the company in this increase.

Similar raises in pay will affect 2,300 employes of the Duluth, Missabe & Northern railroad, and 1,800 employes of the Duluth & Iron Range railroad. On the railroads, the employes to be affected are principally the shopmen and laborers. The trainmen will not be affected, as they come under contract agreements with the railroad unions.

In announcing the increase of wages of his company, W. J. Olcott, president of the Oliver Iron Mining Co., said: "The company is making a voluntary readjustment of the wages. The rates for surface labor will be advanced from $2.10 to $2.25 per day. There will be readjustments of the rates in other classifications of labor, both surface and underground. It is the purpose of the company to give the highest percentage of increase to the lower paid employes."

While no announcement has officially been made by other mining companies as to increased wages it is believed highly probable that they will meet the wages offered by the Steel Corporation. It is probable that common labor will be in great demand on the ranges during the coming season and if the wages paid by one company are not met by the others, the latter will find difficulty in keeping their employes.

Dora furnace of the Virginia Iron, Coal & Coke Co., Roanoke, Va., at Pulaski City, Va., has been blown in.

THE IRON TRADE REVIEW

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Cleveland, February 13, 1913

Collapse of the Charges of Wm. J. Burns

The present status of the charges made by Detective William J. Burns in an address at the Cleveland Chamber of Commerce, Jan. 28, against the National Erectors' Association and its commissioner, Walter Drew, demands a review of the facts and a statement of the conclusions to which THE IRON TRADE REVIEW has come after careful investigation and thought.

Mr. Burns asserted that the National Erectors' Association was to blame for the failure to convict "men higher up" in the atrocious dynamiting cases, of which the murders caused by the blowing up of the Los Angeles *Times* building were the worst results. Mr. Burns charged the National Erectors' Association with failure to support him in collecting evidence for the conviction of the dynamiters, who were responsible, not only for the Los Angeles crime, but for countless dynamitings throughout the country. He declared that Mr. Drew is not only a "bum detective", but a "crook of the worst kind", who is willing to resort to unlawful means to accomplish his purpose.

Commenting on these charges, THE IRON TRADE REVIEW of Jan. 30 said:

"No association connected in any way, directly or indirectly, with the iron trade should be tolerated for one minute, if it is guilty of such charges as those made by Detective Burns. Therefore, as a representative of the iron trade, THE IRON TRADE REVIEW insists that Detective Burns shall make his charges formally in writing and in detail before some impartial tribunal, in order that the National Erectors' Association and its commissioner shall have an opportunity fully to defend and purge themselves. We believe that all the testimony should be given in public and that the conclusion of the tribunal should be published to the world."

Mr. Burns was seen, a few days later, by the New York representative of THE IRON TRADE REVIEW and requested to make a complete statement of his charges. This Mr. Burns failed to do, but he made a statement which was published in THE IRON TRADE REVIEW of Feb. 6. In this statement, Mr. Burns declared that he had found no fault with the National Erectors' Association, and had no fight with that Association. Careful consideration evidently has caused him to conclude that it would not be wise to repeat the very serious charges made against the Association in his address much more elaborately than reported in THE IRON TRADE REVIEW. In his statement, Mr. Burns admits, however, that he did take the matter up, for he says:

"But by way of explanation, I once took up the matter with some executive body of the National Erectors' Association and wanted them to back me up and let me go after the men higher up, and when I said that, I didn't mention Samuel Gompers and didn't mean Samuel Gompers; but I meant Tveitmoe and others like him who have thus far escaped conviction."

This assertion seems to indicate ignorance of the fact that Tveitmoe was convicted at Indianapolis and sentenced to six years in prison.

As to Mr. Drew, Mr. Burns asserted, "I am going after my traducers and Mr. Drew is one of them." Of course, that sweeping statement proved nothing and by way of specification in support of his charge, the only allegation is that stated in the following sentence:

"It has been sought by Mr. Drew to show that I have considered Samuel Gompers as the 'man higher up', and that he was the man I was seeking. This is a falsehood, and there was no ground whatever for such a statement."

Whether Mr. Burns ever actually by name spoke of Mr. Gompers as the man he meant in speaking of "getting men higher up", we are not at present prepared to say, although we are informed that in many interviews Mr. Burns was quoted as saying that he intended to "get Gompers". However that may be, Mr. Burns certainly did create a widespread belief that he referred to Gompers when he spoke of convicting men higher up. Admitting, for the sake of the argument, that what Mr. Burns now says is true, Mr. Drew was like countless other men in believing that Burns referred to Gompers and giving utterance to that belief did not make Mr. Drew a "crook". No further allegations or facts were submitted in his statement by Mr. Burns to substantiate his assertion made in his speech that Mr. Drew was a "crook", and the language can be explained only by Mr. Burns' frequent looseness of expression in speech.

In spite of the utter failure of Mr. Burns to substantiate his charges, we still believed last week that the National Erectors' Association and Mr. Drew had not done their full duty in regard to the charges. We are now informed, however, that on Jan. 31, Mr. Drew wrote a courteous letter to Mr. Burns, in which he asked to be advised, first, as to whether he had made the charges as reported, and, second, what basis he had for making such statements. In closing his letter, Mr. Drew said: "I know you use strong lan-

guage easily, and strong terms do not have quite the significance to you that they might to others, but to call a lawyer a crook before a body of men, many of whom know him, is, of course, a serious matter, and I hope and believe that you used such a term only on momentary impulse and without any desire to have it taken at its full significance."

Nothing could be fairer or more courteous than that and yet Mr. Burns has failed to reply to Mr. Drew's letter. Hence we believe that Mr. Burns has failed to substantiate his charges and that the National Erectors' Association and Mr. Drew will be justified in paying no further attention to him.

An important fact which should not be forgotten in connection with this controversy is that Mr. Burns had no part in the investigation or prosecution of the federal cases at Indianapolis after the government took charge on Nov. 7, 1911. We do not understand that Mr. Burns claims he had such connection, but nevertheless an impression that he had is general among people not accurately informed in regard to the facts. We are also officially advised that not since Nov. 7, 1911, has Mr. Burns been in the employ of the National Erectors' Association. The identity and whereabouts of the two dynamiters, McManigal and J. B. McNamara, as shown by the evidence at the Indianapolis trial, were made known to Mr. Burns directly through one of the members of the National Erectors' Association, although Mr. Burns doubtless believed, prior to that time, as did many others, that the McNamaras were connected with the dynamiting of numerous plants.

THE IRON TRADE REVIEW is authorized to say that the National Erectors' Association never authorized any statement about "getting" Mr. Gompers. The National Erectors' Association disavows any desire to pursue or "get" any person in the absence of any evidence of criminal connection with the series of outrages against its members. It says that the 38 men convicted at Indianapolis include all "higher up" against whom any evidence was produced.

A very important lesson to be drawn from this outburst of Mr. Burns is that intemperate, reckless and utterly unjustified use of abusive language is harmful to the cause of the enforcement of the law against dynamiters and other criminals. By adopting such methods, Mr. Burns also does himself great injustice. He has accomplished much in promoting the cause of justice in this country. He has the ability to do much more good, but continuance of his policy as exemplified by his Cleveland speech will be disastrous to himself and harmful to the cause.

Solidifying Steel Contracts

Much has been said by steel manufacturers both publicly and privately regarding the iniquities and inequalities of the so-called optional contract that now generally prevails in the industry. Under the broad latitude of the form of contract commonly in use, the element of speculation figures prominently. Many buyers feel no compunction in contracting to take from a single producer or from each of several steel makers, a tonnage of product which in the aggregate greatly exceeds a reasonable estimate of the consuming needs of this purchaser over the delivery period specified. This deliberate overbuying is, in many cases, justified in the buyer's mind by the realization, from the experiences of the past, that he will have little difficulty in cancelling such portions of his contract as conditions may render undesirable or unprofitable for him to accept. It is a matter of common appreciation in the industry that some consumers overbuy their needs in this way, feeling assured that they can simply refuse to take such tonnage as they may elect should the market decline or their requirements fall short of their original estimates. The mills, as a matter of policy, have usually not seen fit to resort to legal procedure for the enforcement of contracts. In fact, such recourse is universally shunned in the steel industry.

Prevailing conditions surrounding steel material contracts likewise lead the mills often to oversell their capacity for a given period in order to leave some insurance against possible cancellations. In substance, they often speculate against the possibility of consumers specifying their contracts in full. This practice not infrequently results in their inability to supply consumers with promised deliveries and in serious congestion of the market when consumptive needs are on a high scale.

The present form of steel contract, which is a contract in name only as applied to numerous finished products, because it is open at both ends, has injected into the industry the temptation towards speculation on the part of both buyers and producers that at best is a constant menace to the stability of the industry. The evils of this system have long been recognized and deplored, yet little apparent progress has been made in correcting them.

A genuinely constructive effort towards the improvement of contract conditions is that recently announced by the Lackawanna Steel Co. Under a new form of contract now being offered to the trade by this company, the mill agrees to supply the estimated requirements of a customer for a fixed period of time, this tonnage to be divided into equal monthly allotments. The buyer agrees under the contract to file by the fifteenth of the preceding month, his specifications for any single month's delivery. The mill in turn accepts to fill these monthly allotments in full, within 45 days at the maximum, of the receipt of the buyer's specification.

This form of contract, in effect, it will be seen, is aimed to put the manufacturing and delivering operations within a 45-day limit. By the buyer pledging himself to take out equal tonnages each month, and furthermore, to have his specifications in some days before the delivery period called for in the contract, the effect is to make each contract insure its full face of tonnage to the mill. This binding agreement of the buyer to take out his steel is calculated to cause him to make his estimates in his contract more accurately measure his actual requirements. Moreover, the specific assurance in the contract that the mill will promptly fulfill its delivery obligations, leaves the consumer amply protected for obtaining a sufficient supply of material when he most needs it. The speculative element in forward contracting is therefore greatly reduced. Once the mill has accumulated contracts stipulating an aggregate of monthly tonnages equal to its monthly capacity, it automatically goes out of the market for that period. The contract in this way destroys the temptation of the maker to oversell his product.

The new contract has been in effect only a short time, but it has already been accepted by a number of buyers. The results of the operations of these contracts, embodying the courageous effort of a leading independent steel maker to eliminate much of the instability of the present unsatisfactory situation, will be watched with much interest by the general industry.

MEN OF THE IRON TRADE

A. F. Huston, president of the Lukens Iron & Steel Co., Coatesville, Pa., left last week for an extended stay at Palm Beach, Fla.

J. E. Thomas, F. C. Robbins, J. A. Hanna, A. G. Webb, B. F. Pew, A. F. Harris, L. H. Young, C. D. Kirkham and Chas. E. Rose have been re-elected directors of the Niles Car & Mfg. Co., Niles, O.

George A. Burman, one of the sales representatives of the Peterson-National Co., Chicago, has resigned and has accepted a position with the Crawford Oil & Chemical Co., Cleveland, manufacturer of core oils.

Charles Dallman was re-elected president and secretary of the International Hoist Co., Antigo, Wis., at the recent annual meeting. George B. Herman, who has been general manager, was elected treasurer and general manager.

Albert H. Pittelkow, secretary and manager of the Davis-Hansen Co., Oshkosh, Wis., has resigned to assume an executive position with the Schmidt Milling Co., that city. Walter Grundy succeeds Mr. Pittelkow with the Davis-Hansen company.

William Geiger was re-elected president of the Defiance Screw Machine Co., Defiance, O., at the recent annual meeting of the stockholders. S. Thompson was re-elected vice president and general manager and John G. Schrag, secretary and treasurer.

Wallace Scott, who has been connected with the Philadelphia office of the Carnegie Steel Co., as a salesman, has been transferred to the structural bureau of the company at Pittsburgh, where he will devote his attention to the sale of wheels and axles.

C. J. Luther was chosen president at the annual meeting of the Luther Grinder Mfg. Co., 161-171 Michigan street, Milwaukee, Wis. F. S. Newton was elected vice president; L. L. Newton, secretary; E. B. Bartlett; G. E. Morton and F. P. Mann, directors.

J. P. Kelley has been elected president of the American Axe & Tool Co., Glassport, Pa., succeeding Chas. W. Hubbard Jr., who retired from that office last week after 16 years of service. Other officers elected were: W. B. Lockett, vice president; William Richards, treasurer; F. H. Brewer, secretary. The board of directors includes the above officers and John W. Hubbard.

J. G. Garrard, who for some time has been metallurgist for the Griffin Wheel Co., Chicago, has tendered his resignation and has accepted a position as superintendent of the Northwestern Malleable Iron Co., Milwaukee, Wis. He assumed his duties last week.

J. P. Labrec, Joseph Lafortune, Joseph Trudel, F. P. Tepoorten, Reiner Hoch and Charles M. Forest were unanimously re-elected directors of the White Iron Lake Iron Co., Duluth, Minn., at the recent annual meeting held in the company's offices, 526 Manhattan building, that city.

W. H. Sanford has severed his connection with the Snapp Foundry, founder and machinist, Winchester, Va., according to official advices from the company. C. L. Robinson, who has been associated with Mr. Sanford as joint proprietor of the foundry, is now sole proprietor.

Peter Kettenring was elected president of the Defiance Machine Works, Defiance, O., at the recent annual meeting. Other officers elected were: W. A. Kettenring, first vice president; R. P. Kettenring, second vice president; W. R. Strickland, secretary; C. C. Hoffman, treasurer; C. H. Kettenring, general manager; George A. Ensign, mechanical engineer.

George Nash was elected president of the National Association of Manufacturers of Sheet Metal and Building Material, at the annual meeting held at the Sinton hotel, Cincinnati, O., on Feb. 4. W. H. Abbott was chosen vice president and T. J. Fernly, secretary and treasurer. The present shortage of sheet steel was the principal topic of discussion at the convention.

John N. Coffin has been elected president and general manager of the Schaefer Mfg. Co., Birmingham, Ala., according to an announcement just made public of important changes in the management of the company. He succeeds John V. Schaefer, who retired as operating head of the company. Mr. Coffin, for the past five years, has been assistant treasurer of the Tennessee Coal, Iron & Railroad Co. Although his activities during his residence in Birmingham have been confined largely to financial affairs, he had had a wide experience in engineering and construction work and as an executive in various commercial and manufacturing enterprises before going to that district. Included in the new board of directors, beside Mr. Coffin, are: W. P. G. Harding, president of the First National Bank; H. C. Ryding, assistant to the vice president of the Tennessee company; Walker Percy and L. T. Beecher.

H. D. Westfall, secretary and general manager of sales, of La Belle Iron Works, Steubenville, O., has succeeded W. D. Crawford as vice president. Mr. Crawford, as announced several weeks ago, was elected president to succeed I. M. Scott, head of the new Wheeling Sheet & Tin Plate Co. Mr. Westfall will continue as general manager of sales. R. C. Kirk, treasurer of La Belle company, has been elected secretary, and is now acting as secretary and treasurer.

E. R. Hamilton, Bloomington, Ill., well known in the iron and steel industry of the middle west, has taken a heavy interest in the Northwestern Steel & Iron Works, Eau Claire, Wis., and becomes a director and associate manager with Thorman W. Rosholt. K. Rosholt, president and manager, is thereby relieved of his duties as director of the works and administration and, while continuing as president, will devote most of his time to his other interests.

Jeremiah Dwyer has again been elected president of the Michigan Stove Co., Detroit. Other officers elected include: George H. Barbour, vice president and general manager; C. A. Du Charme, second vice president and secretary, and E. S. Barbour, treasurer. The board of directors elected includes Jeremiah Dwyer, George H. Barbour, Chas. A. Du Charme, Merrill B. Mills, E. S. Barbour, Chas. L. Palms, Francis Palms, H. B. Gillispie, L. B. Young, Emmet J. Dwyer and Chas. B. Du Charme.

Fred T. Moran, John M. Dwyer, Jas. M. Dwyer, Daniel T. Crowley, Edwin L. Dwyer, Albert E. Dwyer, Albert B. Moran, David C. Whitney and Geo. E. Lawson were elected directors of the Peninsular Stove Co., Detroit, by the stockholders at their annual meeting recently. The officers elected are: Fred

MEN OF THE IRON TRADE

T. Moran, president; John M. Dwyer, vice president and general manager; James M. Dwyer, vice president and factory manager; Daniel T. Crowley, secretary; Edwin L. Dwyer, treasurer; Albert E. Dwyer, purchasing agent. John H. Lane was appointed general superintendent and Alfred B. Moran manager of the furnace department.

Neal A. Bennett is now identified with the mechanical department at the American Steel Foundries, Sharon, Pa., acting in the capacity of draftsman.

B. T. Williams, South Connellsville, Pa., has been appointed night superintendent of La Belle plant of the American Sheet & Tin Plate Co., near Wheeling, W. Va.

F. Ward Corburn, assistant superintendent at the plant of the Toledo Furnace Co., Toledo, O., has been appointed superintendent of the Ella furnace, West Middlesex, Pa.

Harry G. Bygate, assistant superintendent at the plant of the Detroit Iron & Steel Co., Detroit, has been appointed superintendent of the Fannie furnace, West Middlesex, Pa.

Philip H. Huffman, formerly identified with the Dravo-Doyle Co., Pittsburgh, is now connected with R. M. Rush, Pittsburgh representative of the Kerr Turbine Co., Wellsville, N. Y.

H. Lyall, secretary-treasurer of the Manitoba Bridge & Iron Works, Ltd., Winnipeg, Man., has been appointed assistant manager of the firm. He was one of the original incorporators.

R. Cairncross Campbell, formerly manager of the Adams-Bagnall Co., Philadelphia, has sailed for London to occupy an important executive position there for the General Motors Export Co.

H. V. Hamilton, formerly connected with the Steel Co. of Canada, Ltd., has accepted a position with the Canada Steel Co., Hamilton, Ont., as sales manager and assistant to the general manager.

O. M. Hall, Red Wing, Minn., was recently reappointed a member of the tax commission of that state. The other members are Samuel Lord, who also was reappointed some time ago, and J. G. Armson.

Colonel H. G. Prout, vice president of the Union Switch & Signal Co., Pittsburgh, at the annual banquet of the Signal club, at the Hotel Henry, Tuesday evening delivered an address on "Extending the Sphere of Usefulness of the Union Switch & Signal".

E. E. Goodwillie has been appointed a member of the Pittsburgh sales office of the Pennsylvania Steel Co., succeeding Roy M. Leachthaler, resigned, effective Feb. 1. Mr. Goodwillie was formerly attached to the company's Steelton sales office.

David Hunter, foreman of construction at the Lorain, O., plant of the American Ship Building Co., has accepted a position with the Great Lakes Engineering Co., at New Orleans, as superintendent of the ship yard which the latter company intends to build there.

James R. Petley, assistant treasurer and purchasing agent of the National Brake & Electric Co., Milwaukee, Wis., has resigned his position to become associated with L. R. Riebs, manufacturers' agent, Milwaukee, and will enter upon his new duties Feb. 17.

James K. Bakewell has moved to 1064 Frick building annex, Pittsburgh, where, with James Negley Cooke, he will continue the practice of patent and trade mark law. Both men have a large circle of friends in the iron and steel trade in the Pittsburgh district.

John J. Grant, well known as an inventor and machine tool manufacturer, has opened an office in the Free Press building, Detroit, as consulting engineer. Mr. Grant formerly served the Flanders Mfg. Co. in that capacity and will specialize on automobile work.

F. E. Castle, formerly head of the Castle Lamp Co., Battle Creek, Mich., and Chas. Munson of the Edmonds & Jones Mfg. Co., have formed the firm of Castle & Munson, to handle the products of the latter company, as well as those of the Rand Mfg. Co., and others.

W. A. McGonagle was re-elected president of the Duluth, Missabe & Northern Railway Co., a subsidiary of the United States Steel Corporation, at the stockholders' annual meeting, held in the company's offices, Wolvin building, Duluth, Feb. 4. Other officers, all re-elected, include W. J. Olcott, first vice president; E. S. Kempton, treasurer; Chas. E. Sheide, assistant treasurer; Frank D. Adams, general solicitor; C. E. Carlson, secretary, and J. M. Sias, assistant secretary. The directors, all of whom were re-elected, are: W. A. McGonagle, W. J. Olcott, G. G. Kerr, W. J. Filbert, H. L. Dresser, G. D. Swift and E. S. Kempton.

I. A. Brown, who retired on Feb. 1 from the position of superintendent of transportation and labor at the Ohio works of the Carnegie Steel Co., was the recipient of many valuable presents Monday afternoon from officials of the company and associates in the department with which he had been connected a long time.

Nathan B. Payne, who has been associated with Manning, Maxwell & Moore, Inc., New York City, for several years, has accepted the position of manager of sales with the Davis-Bournonville Co., manufacturer of oxy-acetylene welding and cutting apparatus, 90 West street, New York City. Mr. Payne assumed his new position Feb. 1.

Otto O. Lindquist, master mechanic for the Allegheny Steel Co., Brackenridge, Pa., has been appointed chief superintendent to fill the vacancy caused by the resignation of Robert Locke. W. F. Detwiler, chief electrician, has been appointed assistant chief superintendent. The positions of master mechanic and chief electrician are abolished.

Albert H. Inman, of Pratt & Inman, dealers in steel and iron, Worcester, Mass., has been elected president of the Chamber of Commerce, recently organized in that city, to succeed the Board of Trade. Mr. Inman was vice president of the old organization, and Edward M. Woodward, president and treasurer of the Woodman & Powell Planer Co., Worcester, was president.

James M. Johnson, of the Louisville Bridge & Iron Co., Louisville, Ky., has been appointed chairman of the manufacturers' committee of the board of trade of that city. Other members of the committee are: Theodore Ahrens, president of the Standard Sanitary Mfg. Co.; W. E. Caldwell, of the W. E. Caldwell Co.; James Clark Jr., of the James Clark Jr., Electric Co.; and Henry Vogt, of the Henry Vogt Machine Co.

IN FOUNDRY PLANT

Rogers-Brown Pictures Were Presented Before Newark Association.

With the true atmosphere on every side of the industry, of which the interesting phases were being depicted, the "Mine to Molder" motion pictures of Rogers, Brown & Co. were presented before an appreciative audience of about 200 foundrymen and their friends at the foundry plant of Maher & Flockhart, Polk street, Newark, N. J., Tuesday evening, Feb. 4. The exhibition was conducted under the auspices of the Newark Foundrymen's Association and filled one of the monthly meeting dates of that organization. Probably never before had there been more local color or a more appropriate setting for the presentation of this most interesting photographic portrayal of the complete cycle of operations in the iron trade, spanning from the mining of the ore to the rolling of a steel rail. The exhibition was given in one of the buildings of an old brass refinery which has recently been acquired as an extension of the Maher & Flockhart plant and will later be used for the chipping department of the plant. The spectators were seated upon seats improvised by the throwing of rough planks across iron flasks turned on end. In one corner of the room, a platform had been laid upon a huge pile of molding sand and seats placed thereon, affording the choice view of a reserved section. The picture machine was mounted upon several large wooden flasks overturned. Under such highly appropriate conditions, it was an enthusiastic reception that greeted H. H. B. Yergason, of Rogers, Brown & Co., in his entertaining narrative of the story of iron and steel, given with the pictures, and extending from the Mahoning, Hill-Rust and other ore mines upon the Superior ranges to the various stages of pig iron manufacture at the Susquehanna plant of the Rogers, Brown Iron Co., at Buffalo, and the development of a steel rail in the works of the Lackawanna Steel Co. At the conclusion of the lecture, the Newark Foundrymen's Association in formal action extended its cordial appreciation to Mr. Yergason and Rogers, Brown & Co., for the exhibition.

Following the pictures, those in attendance were treated to a display of generous hospitality by their host, James Flockhart, who, assisted by a number of his employes, laid before his guests a bountiful spread of refreshments. Here also the atmosphere was not lacking since the coffee was prepared over the melting furnaces of the old brass foundry and the tables were constructed from the materials and equipment of the foundry. During the evening, the guests were further entertained by old Scotch airs rendered by vocal and instrumental artists.

The evening's presentation of the pictures was preceded by a separate exhibition given by Mr. Yergason, in the afternoon, for the special benefit of the employes of Maher & Flockhart, which was witnessed by the several hundred workmen of the plant.

On Wednesday evening, Feb. 12, the pictures were shown before the New England Foundrymen's Association at Boston.

UPWARD TENDENCY

Of Iron and Steel Prices on the Pacific Coast.

Tacoma, Wash., Feb. 7.—Pig iron and steel prices in the northwest are remaining firm with a decided upward tendency for steel. Twenty cars of pig iron were delivered in Tacoma a few days ago at $27.43 a ton. The shipment came from Birmingham and the price was an advance of $9.43 over the market a year ago. Imported iron is held at $27.50, although a concession was offered by Balfour, Guthrie & Co., Perkins building, Tacoma, to meet the domestic price. The present stock of imported iron cannot be replaced and sold at this price, according to Herbert J. Bremmer, manager of Balfour, Guthrie & Co. The next shipment of iron will be sold at $30.

Steel out of store is bringing $2.75, according to a quotation made by the Pacific Coast Steel Co., Seattle.

The Seattle Construction & Dry Dock Co. reports its work being hampered by lack of steel. Big orders are held up, Manager J. V. Paterson said, because of slow deliveries which have caused considerable difficulty. Besides the present orders on hand, the company reports figuring on a number of other sales in the northwest which will probably require large amounts of structural steel. Mr. Paterson said:

"The conditions of the steel market are not improved. Delays in shipments are occurring on account of increased orders for tonnage by the mills and no definite promise can be obtained. We are very much held up on our construction contracts on this account."

The Western Hardware & Metal Co., Seattle, through L. S. Capers, reports steel deliveries very slow. Mild steel bars were quoted at $2.75, with sheet steel at $2.85 per hundred weight. Common iron bars were priced at $2.55.

MORE BINDING CONTRACT

For Buyer and Mill Offered by Lackawanna Steel Co.

A new form of contract for iron and steel products which is aimed to give the consumers a more assured delivery service and the mill a fixed tonnage of specifications against contracts, monthly, is being offered to the trade by the Lackawanna Steel Co. Under this contract, the mill accepts the estimated requirements of any consumer over a given period of time and this tonnage is divided into equal monthly portions. The buyer agrees according to the stipulation of the contract to file his specifications for any month's delivery, by the 15th of the preceding month. The mill accepts to fill these monthly allotments in full within 45 days of the receipt of the specifications from the buyer.

The contract substantially aims to put the manufacturing and delivering of steel products within a limit of 45 days. In effect, it is believed such an arrangement as that now offered would remove any of the objectionable features of the present so-called optional contract. It will tend, it is thought, to prevent the buyer from overbuying and the seller from overselling. The contract is most readily applicable to commitments for steel bars, plates and shapes.

Adjust Vessel Suits

Involved in more or less mystery is the final settlement of all suits involving the American Ship Building and Commonwealth Steamship companies at Cleveland. About 20 suits are involved in the settlement reached last week. The understanding is that the Commonwealth and Acme steamship companies will receive about $285,000 in settlement of these suits, of which the American Ship Building Co. will pay about $200,000, and the Hawgoods individually about $85,000. Several of these suits, which have been appealed to federal circuit court, have been previously decided in the federal district court in favor of the Commonwealth company. On the cases appealed, the Ship Building company was ordered to take back three vessels and to pay the original contract price less an adjustment of claims.

Foundry Publicity.—A. O. Backert, editor of *The Foundry* and vice president of the Penton Publishing Co., Cleveland, talked about "Foundry Publicity" before members of the Pittsburgh Foundrymen's Association, following the regular monthly dinner, Feb. 10.

RATE COMPLAINT

On Southern Pig Iron Submitted to Commerce Commission.

The Sloss-Sheffield Steel & Iron Co.'s complaint against the pig iron freight rate to and beyond Ohio river crossings from southern furnaces has finally been submitted to the Interstate Commerce Commission. Arguments on the law and the facts were presented Saturday afternoon by Attorney Wimbish for the complainants and by Attorneys Northcutt for the Louisville & Nashville, R. Walton Moore for the Southern, Ernest C. Ballard for the railroads in Central Traffic Association territory, Frank H. Lyon for the intervening furnaces in the Ohio field, and W. A. Glasgow for the eastern Pennsylvania furnaces.

The arguments consisted mainly of re-statements of the testimony brought out at the formal hearings.

Mr. Wimbish took the ground that the southern furnaces are entitled to a reduction of $1 a ton on the showing they have made, that the revenues resulting from the pig iron trade of the southern roads prove it to be the most profitable traffic they have. He insisted that the old agreement which provided that rates should go up and down in sympathy with the price of pig shows what the railroads thought would be a reasonable way of adjusting the old dispute.

Mr. Lyon, speaking for the furnaces north of the Ohio river, said that they are concerned merely in the relation of the rates; that if the commission deems those rates prevailing south of the Ohio river too high, then they want any reduction made in that territory reduced in like degree so that the southern furnaces, which now get into the northern markets will not have an increased advantage by reason of such reduction.

Mr. Glasgow in effect asked the same for the eastern Pennsylvania furnaces, saying that the margin on which they do business into New England, their chief market, now is narrow and any narrowing will give the southern furnaces more than they are entitled to receive.

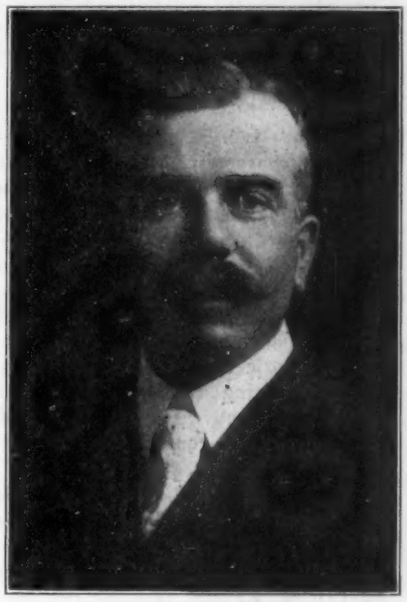
Argue Allowances

Arguments were made in Washington, last week, in what is probably the final struggle in the investigation which the Interstate Commerce Commission has made into the allowances paid by trunk lines to short railroads owned by iron and steel industries from the territory north of the Ohio and Potomac and east of the Mississippi rivers. The commission, in order to assure itself of time for hearing all that the attorneys might reasonably hope they should be permitted to say to the Commission, set aside two days for the matter.

DIES SUDDENLY

H. C. Bourne, Treasurer of Bourne-Fuller Co., Passes Away.

Herbert C. Bourne, treasurer of the Bourne-Fuller Co., Cleveland, died at his home in that city early Saturday morning, Feb. 8. On the previous evening, Mr. Bourne, while attending a reception at the Colonial Club, at which President Taylor, of Vassar College, delivered an address, was suddenly overcome by an attack of apoplexy and died within a few hours after being removed to his home.



HERBERT C. BOURNE

Mr. Bourne was born in Hyannis, Mass., 50 years ago, and went to Cleveland in his early youth. He graduated from Harvard in 1887, and since that time had been connected with the Bourne-Fuller Co. and its predecessors. He was a son of the late E. H. Bourne, president of the Bourne & Knowles Mfg. Co. and also president of the Union National Bank.

Decreased Output.—The January output of iron and steel by the Nova Scotia Steel & Coal Co., New Glasgow, N. S., was less than usual, owing to the furnaces having been closed down for repairs. The figures for the month were: Coal mined, 69,000 tons; ore mined, 38,500 tons; pig iron, 4,800 tons; steel, 5,800 tons.

INCREASED EARNINGS

Shown by Chicago Pneumatic Tool Co. in Past Year.

The annual report of the Chicago Pneumatic Tool Co. shows larger profits for 1912 than those of the preceding year, but only up to the amount in 1910. The amount available for dividends in 1912, after deductions for depreciation, improvements and the interest and sinking fund payments, was $601,000, compared with $412,700 in 1911, and $694,000 in 1910. The amount in 1912 figured 9.3 per cent on the $6,448,800 capital stock outstanding, compared with 6.3 per cent in the preceding year and 10.2 per cent two years before. A comparison of the company's income account for the past two years follows:

	1912.	1911.
Profits	$1,002,260	$772,526
Deprec., repairs, etc.	224,549	185,242
Develop. pneumatic tools	11,516	9,545
Balance	$766,195	$577,720
Bond interest	115,000	115,000
Sinking fund	50,000	50,000
Earned on stock	$601,195	$412,730
Dividends	257,951	257,051
Surplus for year	$343 344	$154,788
Previous surplus	1,663,937	1,509,149
Total surplus	$2,007,181	$1,663,937

Building Activity in Detroit

Four big new buildings, ranging from eight to 14 stories, are scheduled for erection in Detroit next spring, the superstructures of which will consume a large tonnage of steel. Two 14-story hotels are included, one to be erected at Michigan avenue and Wayne street by David Stott, millionaire miller of that city, and the other on a triangular plot at Washington boulevard and Bagley avenue, facing West Grand Circus park. The latter will be erected by the United Hotels Co., of New York. It will consist of 700 rooms and made as nearly fireproof as possible, to cost, completed and furnished, upwards of $2,000,000, according to Frank A. Dudley, president of the company, who closed the deal for the site last week.

One block east of the Stott Hotel, at Shelby street and Michigan avenue, F. G. Clayton, clothier, has had plans prepared for an eight-story store and office building, of modern construction, the estimated cost of which is from $125,000 to $150,000.

Another modern structure to rise 10 stories or more will be the new home of the Detroit Athletic Club. The site, lying between Madison avenue, John R., Randolph and Cross streets, is 270 x 175 feet. The building, according to tentative plans, will cost in the neighborhood of $1,500,000 and contain modern equipment.

BRITISH AND CONTINENTAL MARKETS

BRITISH IRON TRADE

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Feb. 1.

Pig Iron.—More foreign complications are doubtless accountable for renewed fluctuations in the pig iron market. The news of the Turkish revolution brought down warrants 1s, in one day. The depression was slightly assisted by less favorable news from America. The principal effect has been upon prices for forward markets, three months' rates being decidedly weak. The present quotation for warrants is 65s 8d ($16.08), with 66s ($16.16) one month, and 66s 3d ($16.22), three months. This is all that need be said from the view point of depression. These fluctuations are restricted solely to the transactions of speculators. The consumption of pig iron tends, if anything, to increase, and the trade position is quite sound, pig iron, in fact, being decidedly scarce. At the present time, there are 10 new blast furnaces in course of erection, in various parts of England and Scotland; but it will be some time before this can affect the output, especially as coke continues dear and scarce. There has been some talk in Sheffield of importing American pig iron, and it is believed that this development is quite likely to follow any material easement of prices of American pig iron. There has been practically no buying this week; but, on the other hand, outside Cleveland there are no stocks, and makers are so very well booked that they regard the temporary lull with indifference. The consumption of hematite material is quite abnormal, and the furnaces have all they can do to overtake arrears. The quotation of East Coast mixed numbers remains at 83s ($20.32).

Finished Iron and Steel.—New business for all branches of finished iron and steel is decidedly quiet. At Birmingham, on Thursday, there was hardly any buying, but specifications are plentiful, and in all parts of the country maximum outputs are being maintained except in the two branches of galvanized sheet and tin plate. In these lines, the position is causing a good deal of anxiety. Selling prices for galvanized sheets have come down to £12, a figure, which, it is said, has almost abolished the profit margin, with raw material and wages at their present high level. Tin plate is in a very similar condition, prices having given way a little during the week, and prompt business being decidedly scarce. It is said that a large American order was on offer this week, but at prices which Welsh makers could not look at. A good deal of business is being refused, owing to the prices offered being considered unremunerative. The question of curtailing output is still under consideration, and it is thought that this step must ultimately be taken.

BELGIAN IRON TRADE

Brussels, Jan. 23.—Strength continues to characterize the market for pig iron and half-products in this country and consumers who are not fully covered by contracts are experiencing a pronounced difficulty in providing for their requirements. Ready supplies of the raw material still command appreciable premiums. Pig iron prices remained nominally unaltered during the past week, but half-products have risen 1s (24½ cents) to 2s (49 cents) per ton. Ingots are now quoted £5 3s ($25.07) to £5 4s ($25.31); blooms of 100 millimeters, £5 4s ($25.31) to £5 5s ($25.56); billets, £5 4s ($25.31) to £5 8s ($26.29), and sheet bars, £5 8s ($26.29) to £5 10s ($26.77) per ton, f. o. b. Antwerp. The home market for bars has also hardened; steel bars are 2.50 francs (47½ cents) higher at 170 francs ($32.30) to 175 francs ($33.25) per ton and small girders have advanced 162.50 francs ($30.87½) to 167.50 francs ($31.82½) per ton.

AUSTRIAN IRON TRADE

Vienna, Jan. 22.—The sales of the Austrian Iron Syndicate have for the month of December, as contrasted with the corresponding period of the previous year, advanced 8,842 tons to 62,688 tons. For the whole year 1912 the sales totaled 837,101 tons, an increase of 148,975 tons over 1911. The distribution of the sales per product in metric quintals was as follows: Bars and profiles, 5,164,954; girders, 1,806,709; plates, 683,445, and rails, 715,900. Under each of these headings there is a substantial advance. The prosperity has been general.

GERMAN IRON TRADE

Berlin, Jan. 23.—According to all reports there is still a distinct scarcity of pig iron, although the production is growing the whole time. There is particularly a short supply of Luxemburg, and the iron syndicate is trying to obtain about 100,000 tons from England to fill the shortage in this particular brand. Quotations are unchanged, but for any supplementary supplies heavy premiums are asked and paid. Specifications for half products are large and pressing. Rolling stock and locomotive builders are supplied with orders for the entire year, and engineering works are also fairly busy, but many of them begin to feel the steady displacement of steam engines by electricity. The Prussian railway budget for 1913 makes provision for 252,000 tons of rails at 121 marks ($28.43½) per ton, 109,000 tons of small ware at 178 marks ($41.83), 172,000 tons of iron sleepers at 113 marks ($26.55), 620 locomotives, 900 passenger coaches and 7,380 baggage and freight cars. This means plenty of new work for locomotive and car builders.

RUSSIAN IRON TRADE

St. Petersburg, Jan. 23.—The iron industry of South Russia, of course, is quite incapable of absorbing the supplies of manganese produced either in the south of the country or in the Caucasus. The latter has had from one point of view, namely, quantity of production, a remarkably prosperous year, and sales are far ahead of those of 1911. Shipments from Poti and Batoum have corresponded with the activity at the mines. Better prices have been obtained. One of the features of the year has been improved shipment to the United States. But the export business is in the hands of one or two large people who manage on behalf of American and German houses to secure the mineral at very low prices. For some time the industry was in very severe straits; but the general prosperity the world over has revivified it. It is said the miners themselves are not doing much better, even under the good times, than they did under the bad.

LATEST MACHINERY NEWS COLLECTED IN LEADING MANUFACTURING CENTERS

In New York, trade in machinery lines continues rather quiet. Some improvement in sales, as compared with last month, is reported. Those sales have represented miscellaneous requirements, mostly originating among manufacturing plants. The railroads have done practically no buying in this market since Jan. 1. Local dealers have been informed semi-officially that the Pennsylvania railroad will put out an extensive list of machine tool requirements, covering both east and west lines, within the next month or two. The Canadian Pacific railway has a list out for shop equipment aggregating in value about $20,000. It is said that orders for these tools will be placed very shortly.

In Pittsburgh, a good volume of business continues to be enjoyed by machine tool and heavy machinery dealers and builders. A representative of one of the large rolling mill manufacturers advises that nearly all the plants have sufficient orders on their books to assure maximum operation through the first half of the year. Equipment of all kinds is in demand. The Reeves Mfg. Co., Canal Dover, O., the Phillips Mine & Mill Co., Pittsburgh, the Pittsburgh Steel Co. and the Cambria Steel Co., Johnstown, Pa., have not yet closed for machine tools mentioned in THE IRON TRADE REVIEW, *Feb. 6. The Otis Steel Co., Cleveland, has entered for 18 cranes and rolling mill equipment for its new plant at Cleveland, and the Cambria Steel Co. is negotiating for four 20-ton cranes. In the neighborhood of 60 cranes are involved in pending transactions. Competition among builders of heavy machinery is just as keen as ever, but better prices are being obtained.*

In Chicago, the machinery trade appears to be experiencing more activity than has been apparent during the past few weeks. Much of this activity, however, is the direct result of the automobile show being held at the Coliseum, as dealers from all parts of the west are in attendance, and are taking occasion to consider their machinery requirements. In most cases, but one or two tools are involved, the majority being second-hand. The present activity seems to be made up largely of small transactions, although some of the larger industrial lists have not entirely been closed. In spite of the large purchases made during the last few weeks, western railroads will require additional equipment, and it is reported that the Santa Fe and the C., B. & Q. are likely to be in the market in the near future.

In Cleveland, the volume of business in the machine tool trade closed during the first ten days of February, leads some dealers to predict that the month will prove to be one of the best this district has experienced for a number of years. The number of single-tool orders closed last week was large and the aggregate of business was heavy. Milling machines and lathes are in strong demand, but inquiries continue in volume for practically all grades. It is understood that there has been a further distribution by the central Ohio steam shovel interest of its list, and the complete list, when issued, will call for about 75 tools. This is the largest single list before the trade, but the number of inquiries for small sized lots continues large.

In Cincinnati, export business has fallen off a little, but this branch of trade is still as good as the domestic, especially in machine tools. Threatened litigation, in both the state and national legislatures, which has handicapped business here from time to time during the past year, has taken a new form in the proposed employers' liability bill which is now pending before the state senate, and strenuous efforts are being made in behalf of the employers of this city, among whom are the machinery people, to have it amended. The sale of milling machines has recently improved somewhat and they can now be placed on about the same basis as lathes and radial drills, as the best sellers at the present time. Business continues spotted, as some plants which have not done any great amount of business for some time are beginning to book satisfactory orders, while others which have been running at full capacity have begun to fall away in new contracts placed. The large number of manufacturers in this vicinity who are either building entirely new plants, or are adding to their present capacity, gives a fairly good aspect to the market for the spring trade, but general indications are that it will not be much, if any, in excess of the present business.

New Construction

The New Jersey Gas Co., Trenton, N. J., will spend about $50,000 in extension and improvements to its plant.

A six-story warehouse, 120 x 120 feet, to cost $215,000, is planned for the John Deere Plow Co., Regina, Sask.

The Lebanon Hardware Co., Lebanon, Pa., is planning to build a new warehouse in the spring.

The Peden Iron & Steel Co. has awarded a contract for the construction of a two-story warehouse building, 100 x 350 feet, of reinforced concrete construction, at San Antonio, Tex.

The Ottumwa Gas Co., Ottumwa, Ia., will erect a new building for its new coal gas plant.

Hermansen & Son, Audibon, Ia., are making extensive repairs and improvements on their planing mill.

The Waverly Mfg. Co., Jefferson, Wis., motor-cycle builder, is making plans for the erection and equipment of a three-story machine shop adjoining its present works. Work will be commenced early in the spring.

The Co-operative Creamery Co., Goldfield, Ia., recently organized, will erect a plant in the spring.

Plans have been made by the Courtland Creamery Co., Courtland, Minn., to build a new creamery in 1914. C. H. Braun is president of the company.

The Willys-Overland Co., Toledo, O., is erecting a $35,000 foundry, the contract having been awarded to the

A. Bentley & Sons Co., that city. It will be 100 x 296 feet. The building will be of reinforced concrete.

It has been voted by the United States Linen Co., Wykoff, Minn., to erect a flax mill this year at a cost of $65,000.

The Denison Electric Co., Denison, Ia., proposes to spend $20,000 in improving its plant in the next two years.

The Hamilton Street Railway Co., Hamilton, Ont., will build six miles of extensions this spring and later will require new cars.

The Pressed Steel Co., Detroit, Mich., has made plans to build a large addition to the plant on Mt. Elliott avenue. Allen H. Zacharias is president and general manager.

The Enterprise Machine Co., Minneapolis, Minn., will build in the near future.

The National Telephone Supply Co., Cleveland, is adding a hot galvanizing department to its plant. It makes hangers, guy clamps, etc.

T. B. Upchurch, J. C. Thomas, and others, it is reported, plan to build a hydro-electric plant and cotton mill at Roeford, N. C.

The city of Burlington, Vt., is considering a proposition to issue $50,000 in bonds to cover the expense of enlarging its electric light plant.

The National Welding Co. Morris avenue and Dickerson street, Newark, N. J., will erect a small repair shop as an addition to its present plant.

Stephen Gyarfus, 12 Frelinghuysen avenue, Newark, N. J., has taken out a permit to erect a shop, 54 x 61 feet, two stories, of brick construction.

The Consolidated Lighting Co., Montpelier, Vt., is planning to extend its power developing capacity. An extensive plant is being considered for construction at Molly Falls.

A creamery costing $20,000, with machinery, will be erected in Prince Albert, Sask., as soon as possible. J. F. Hansen and Hugh Sibbald, of the above city, are interested.

M. Beatie & Sons, manufacturers of dredges and contractors' plants, are planning an addition to their works which will provide work for several hundred extra men.

Two incinerators at a cost of $60,000, have been recommended to the municipality of South Vancouver, B. C. Plans will be drawn up within a short time.

The Gould Balance Valve Co., Kellogg, Ia., manufacturer of ensilage cutters, balance valves and disc sharpeners, recently completed an addition to its building, and installed a full line of wood-working machinery. This company is planning to build a foundry and an additional storage room some time this year.

A new steel plant to be located at Fort William, Ont., is being planned by the Steel Co. of Canada, Ltd., Notre Dame street east, Montreal, Que.

The Sturtevant-Merrich Co., Springfield, Mass., is to erect a new storehouse on Chestnut street. The building will be of brick construction, 120 x 90 feet, four and five stories.

The Boston & Maine railroad is to erect an $18,000 addition to its Springfield, Mass., round house, and a $2,500 addition to the boiler house at that place.

The McNaull Boiler Works, 216 Locust street, Toledo, O., has placed a contract for a new brick office building adjoining the company's factory on Front street.

Plans are being prepared for an extension to the stove factory of the Doherty Mfg. Co., Sarnia, Ont.; W. Doherty, manager. These plans include a three-story building.

A new electrical laboratory for high tension experiments is to be installed at Harvard University, Cambridge, Mass., as the result of a gift of $50,000 made the institution by Miss Harriet Otis Cruft.

The J. T. Robertson Co., South Manchester, Conn., is to erect an addition to its factory on Hilliard street. It will be of brick and mill construction, 140 x 30 feet, two stories.

The Ford Motor Co., Detroit, Mich., has purchased a building site on University avenue, St. Paul, Minn., and is having building plans drawn. Kees & Colburn, Minneapolis, Minn., are the architects.

An auto wheel plant to cost $40,000 is planned for the Chatham Auto Wheel Co., Chatham, Ont. A by-law authorizing this construction will be voted upon soon by the municipality. Machinery will be required.

Gaut & Chase, 122 S. Michigan avenue, Chicago, have prepared plans for a new building for the Temple Pump Co., Chicago. The building will be located at 418 West Fifteenth street, and will be one story, 125 x 465 feet.

The Union Foundry Co., Anniston, Ala., is planning the fourth extension to its plant since its establishment a few years ago. The addition will amount to 10,000 square feet, making the entire plant about 1,000 feet in length.

The Ryan Car Co., 332 Michigan avenue, Chicago, will erect a one-story brick machine shop at Hegenwisch. The shop will be one story, 50 x 125 feet. The company advises that it will need some new machinery.

The Globe Art Co., Newark, N. J., will build a factory, 34 x 86 feet, three stories, of brick construction, at 45 Winthrop street. The building will contain principally special machinery and is estimated to cost $8,000.

E. Roth, architect, 507 Fifth avenue, New York, has prepared plans for a six-story factory building to be erected at Grand street, between Baxter and Center streets. L. Eisenberg, 165 Grand street, is owner. The building is estimated to cost $150,000.

Work has begun on the new factory of the Waukegan Motor Boat Co., Waukegan, Ill. The estimated cost is given as $50,000. John D. William, Albert Leeland and E. C. True of Milwaukee are reported as being the owners.

The Speedway Tire Co., Louisville, Ky., has completed plans for the erection of its factory, having selected a site at Twenty-fourth and Maple streets. The plant will cost about $250,000. H. L. Lewman is president of the company.

The Canadian Northern Railway Co. has been authorized to extend spurs to the Canada Chemical Co.'s smelter and to the iron and ore bins and charcoal plant of the Standard Iron & Lumber Co. of Canada, Ltd., at Parry Sound, Ont.

The British Columbia Electric Railway Co. plans the construction of additional repair and car making shops in Burnaby municipality, in addition to the shops they already have at New Westminster. The shops will employ about 500 men.

J. H. McDonald, formerly of the British Canadian Lumber Co.'s mill on Lulu Island, B. C., and Temple and Ronald Cliff, Burnaby, B. C., will erect a saw mill, box factory and shingle mill at New Westminster, B. C., shortly, costing $75,000.

The Canadian General Electric Co. will commence work on a five-story warehouse in Calgary, Alta., as soon as weather permits. The size of the warehouse in Vancouver, B. C., will be increased. A branch has been opened in Victoria, B. C., to take care of business in Vancouver Island.

C. E. Corby, architect, 621 Broadway, New York, has prepared plans for a seven-story factory building to be erected at 141-145 East Twenty-fifth street. The building will run through to Twenty-sixth street. The New York Railway Co., 135 Broadway, is owner.

The H. B. Smith Co., Springfield, Mass., manufacturer of heating supplies, has awarded the contract for

the erection of a large storehouse to the Levering & Garrigues Co., Hartford, Conn. The building will be of steel construction, 240 x 40 feet and 25 feet high.

The William Ganschow Co., manufacturer of gears, 1001 Washington boulevard, Chicago, is erecting an addition to its plant 49 x 125 feet, six stories. It will include a hardening plant, pattern shop and machine shop, and is expected to be ready for occupancy about June 1.

Henry R. Johnson, Springfield, Mass., is to erect a store building on Market street. It will be a six-story structure, of brick, mill construction, with artificial stone trimmings, and equipped with steam heat, elevators, electric lighting fixtures, etc. The main building will be 75 x 66 feet, with a wing, 25 x 25 feet.

The plant of the new $1,000,000 sugar refinery to be erected at St. John, N. B., by the Atlantic Sugar Refinery Co., D Lorne McGibbon, of Montreal, manager will include a three-story machine shop 50 x 82 feet, engine and pump house, one-story 41 x 75 feet, and boiler house, two-story, 82 x 102 feet.

The Faultless Stove Works, St. Charles, Ill., will erect an addition to its factory to cost $8,000. The building will be of brick, two stories, 70 x 70 feet, and is being built to furnish space for the manufacture of a new kitchen cabinet which the company is bringing out. Some new machinery will be required.

The Cleveland Galvanizing Co. has let the contract for a new addition to its plant 45 x 140 feet, five stories, reinforced concrete, site adjoining the old plant. The site is now being cleared. The upper stories of the building will be devoted to manufacturing and storage. The floors are designed to carry a weight of 400 pounds per square foot.

The Levi Tyler Land Co., Louisville, Ky., has authorized J. J. Gaffney, of that city, to draw plans for a large theater to be erected on Jefferson street between Third and Fourth streets. No announcement has been made regarding the design of the structure, but probably will be of reinforced concrete. The estimated cost is $250,000.

B. J. McCormick, industrial commissioner at Welland, Ont., has completed arrangements for another cotton plant to be erected in that city, in addition to the Empire cotton mills now in course of erection. It is expected that building will be completed, machinery installed and the plant in operation by the end of October. The contracts are to be let in 30 days. Two hundred and fifty hands are to be employed at the start.

The Beard Creamery Co., Youngstown, O., has plans under way for the construction of a new brick and reinforced concrete building, 40 x 120 feet, two stories, Market and Glenaven avenue. A. W. Beard, president of the company, says that two ice machines of 30 tons capacity each will be installed with other modern equipment.

The Sorel Iron Works, Ltd., Sorel, Que., has been incorporated at Ottawa with a capital stock of $100,000, to conduct an iron and steel foundry and machine and repair shop, to build tugs and steamboats, manufacture boilers, engines, etc. The incorporators are Antonin Pontbriand, George Pontbriand, Henri Pontbriand, Joseph Pontbriand and C. Pontbriand, all of Sorel.

The G. Caarman & Co. iron works, Holyoke, Mass., contemplates incorporating and erecting an addition that will double the present capacity of its plants. The expansion plans include the erection of a new building of concrete and steel in Commercial street, adjoining its present plant. It is also planned to include bridge construction and similar work in its operations.

The Koehring Machine Co., Thirty-first and Concordia avenue, Milwaukee, Wis., manufacturing concrete mixers, hoists, engines, etc., will erect a $15,000 office and administration building, 36 x 62 feet, three stories. The offices have always been located in the down-town district at Milwaukee, at present being at 616-620 Germania building. Phil A. Koehring is manager.

Announcement has been made that the Holt Mfg. Co. is perfecting plans for the construction of a plant near Newark, N. J., for the manufacture of caterpillar engines for the eastern market and the foreign trade. R. S. Springer is secretary of the company, and is located at Stockton, Cal. Other cities where the company has offices are Denver, New York City and Peoria, Ill.

The Pacific Building Trust, Cambridge, Mass., is to erect a store house at Albany and Pacific streets for the occupancy of the H. J. Heinze Co., Boston and Pittsburgh. The building will be of brick with granite trimmings, 237 x 75 feet, two stories, with basement. Concrete footings, piers and foundations on pilings and some steel beams and columns will be used in its construction. Warren & Gerrish, Boston, are the engineers.

E. C. Atkins & Co., Indianapolis, Ind., have begun the erection of a five-story building in Memphis, Tenn., to be used as a branch distributing house. The company has been located in Memphis for some time. J. W. Gladding is local manager of the saw concern. The new building will be 50 x 165 feet. In addition to being used for office and storage purposes, a saw shop will be included.

A new machine tool plant to cost about $100,000 will be built soon at Mitchell avenue and the B. & O. railroad, Cincinnati. A site which has a frontage of 234 feet on Mitchell avenue with a depth of 900 feet has been purchased and it is understood that the dimensions of the plant, which will include a foundry, will be 60 x 200 feet. The principals in this new corporation are James B. Schumacher, John S. Becker and George C. Euskirchen, all of Cincinnati.

The New England Telephone & Telegraph Co. has begun the erection of a new Back Bay exchange in Belvidere street, Boston. The building will be of brick, 174 x 60 feet, two stories, with basement. It will have smokeproof towers with walls 1 foot thick at each end, to afford safety exits in case of fire cutting off escape by the regular stairways. The stairways within the tower will be fireproof and the doors, which will be the only openings, will be of metal.

The Bay City Iron Co., Bay City, Mich, has had plans prepared for erecting three new buildings, to cost $70,000. Plans, as accepted by the officers, call for a two-story machine shop, 80 x 250 feet, a boiler shop of similar dimensions, and an addition to the present foundry. Breaking of ground for the addition will begin at once. A crane, electrically operated, will be installed in the machine shop. The company only recently moved into its new office building.

A foundry to cost $250,000 is planned for the Hamilton Malleable Iron Co., Ltd., Hamilton, Ont. The main building will be 600 x 200 feet and will contain 15-ton melting furnaces, annealing furnaces, complete cleaning and finishing equipment, and high-speed electric traveling cranes. Other buildings include a machine shop, carpenter and pattern shops, storehouse, pattern storage vault and office. Cranes, compressed air molding machines and sand blast equipment are included in the requirements. J. E. Hammond is manager.

The Edward G. Budd Mfg. Co., Philadelphia, has aquired the Grab-

owsky Power Wagon plant at Mt. Elliot avenue and Dunn road, Detroit, on the Michigan Central belt line, and will move its business to that city at once. The company manufactures pressed steel auto bodies for both commercial and pleasure cars, the parts being welded into one seamless piece. The company will build extensions to the Detroit plant to cost between $175,000 and $200,000. Edward G. Budd is president of the company.

The Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., is preparing for extensive improvements to its various properties. These improvements include three and one-half miles of railroad at Russellville, and two washers there, costing $125,000; washers at Flat Top and Brookside, and some additional improvements, costing $110,000; additional machinery at various places, $15,000; three tipples at Brookside, $25,000; a new fan at Flat Top, capable of furnishing 200,000 cubic feet of fresh air per minute, $15,000; electric plant at Sloss ore mines, $15,000.

The International Hoist Co., Antigo, Wis., has increased its capital stock from $50,000 to $150,000, and will use the new issue for the construction of new buildings and handling the orders now on hand and waiting execution, amounting to more than $75,000. The company is a consolidation of the Pioneer Iron Works and International Hoist Co., the merger having been effected about two years ago. Since that time the company has established a new plant on a larger site, but this has been outgrown. Immediate needs for equipment have been filled, but a considerable list will be put out within three or four months, as the additions approach completion. The company manufactures hoists, cranes, gasoline engines and similar products.

Machine Tools

Samuel Trethewey & Co., Ltd., Pittsburgh, manufacturers of steam hammers, contemplate the installation of new machinery, including high speed planers, shapers and gap lathes.

The Nashville, Chattanooga & St. Louis railroad is purchasing equipment for a large machine shop which is being established at Paducah, Ky. The general offices of the company are in Nashville, Tenn.

Lewis & Drye, Lebanon, Ky., are in the market for machine tools to be installed in their large automobile repair shop. The remodeling of the building which is to be occupied is proceeding rapidly, and operations will start in the near future.

The Bessemer Gas Engine Co., Grove City, Pa., has installed four 165-horsepower and one 75-horsepower Bessemer gas engines, direct connected to generators, and one 40-horsepower Bessemer direct power connected engine-driven compressor in its new power plant. The company recently closed negotiations for a pressed drill and a couple of lathes, and purchased patterns of the Middleditch Co., Detroit. The Bessemer company is in the market for a number of machine tools, including a grinder, a drill, key seating machine and a press.

Cranes Wanted

The Lockhart Iron & Steel Co., McKees Rocks, Pa., is in the market for one or two electric cranes, for installation in the plant at that city.

Important Inquiry From Otis Steel Co.

The Otis Steel Co., Cleveland, has sent out definite inquiries for equipment for the new plant to be built at that city. Bids for equipment, which include everything for a modern steel plant, are being asked through the United Engineering & Foundry Co., Pittsburgh, which has been awarded the general engineering contract. Aside from rolling mill equipment, bids are being asked on 18 electric cranes, of 75 tons capacity and less. Mills probably will be built by the United Engineering Co.

The National Metal Molding Co., Economy, Pa., is negotiating for a 10-ton electric traveling crane for installation in the plant at that city.

The Cambria Steel Co., Johnstown, Pa., is in the market for four 20-ton electric traveling cranes. Cranes will be installed in the plants at Johnstown.

The American Sheet & Tin Plate Co., Pittsburgh, is making extensions to its plant at Vandergrift, Pa., which will require the addition of a 30-ton and a 10-ton electric traveling crane.

The Pittsburgh Crucible Steel Co., Pittsburgh, has not yet closed negotiations for 23 electric cranes, of various capacity, for installation in the company's new plant at Midland, Pa. Details of this inquiry were given in the Iron Trade Review, Jan. 30.

More than 60 electric cranes, of various capacity, are under negotiation in the Pittsburgh district. Builders are figuring on 23 cranes for the Pittsburgh Crucible Steel Co., to be installed in the Midland, Pa., plant, 18 for the Otis Steel Co.'s new plant, at Cleveland, four for the Cambria Steel Co., Johnstown, Pa., and scattering inquiries for 15 or 20 cranes have been received.

Water Works

Plans and specifications for new pumping machinery for the water works, Jefferson City, Mo., are being prepared by Chester & Fleming, consulting engineers, 1111 Union Bank building, Pittsburgh. Bids will be taken at an early date.

Corbin, Ky., is about ready to let a contract for the construction of a water works system, having sold bonds authorized for the purpose. Mayor Wyrick can give information.

The waterworks pumping plant on Broadway avenue, Toledo, O., is being almost entirely reconstructed. A new 25,000-gallon reservoir for filtered water is being built. A new pump with a capacity of 30,000,000 gallons a day will be installed. There will be five pumps with a total capacity of 75,000,000 gallons a day in the plant.

A company is being organized at Carlisle, Ky., for the establishment of a system of water works. H. B. Bryson is in charge of the proposed improvement.

A water works and intake to cost $240,000, with a filter gallery comprising a power plant, pipe line and reservoir, is being planned by Sarnia, Ont. H. A. McLean is town engineer.

A monster bronze valve is nearing completion in the plant of the Chapman Valve Mfg. Co., Indian Orchard, Mass. It is being turned out for the New York water works department, and will be placed against another valve of similar size, but made of iron, and weighing much more, at the "Hudson blow-off". The two gates will be provided so that in the event of one getting out of order the other may be used. The gate of the valve has an opening of 40 inches and will be operated by a hydraulic lift. The specifications require that it must stand a pressure of a 400-foot head. This valve is being made of manganese bronze and every piece of metal entering into its construction is subjected to a test of 60,000 pounds to the square inch. The company has delivered four 54-inch iron valves for use on the same job and is figuring on one 66 inches in diameter. The construction of the bronze valve called for special tools, all of which were made by the Chapman company.

Miscellaneous Machinery

S. Strohl, 224 West Illinois street, Chicago, is in the market for a used punch press No. 3-4, electric tool post grinder, plain milling machinery and a gas furnace.

It is reported that C. H. A. Dissinger & Bros., Inc., Wrightsville, Pa., machinists and founders, will soon be in the market for new machinery. The company was formerly located in Lancaster, Pa.

The Worcester, Mass., Electric Light Co. is planning improvements that will cost approximately $250,000. The plans call for the installation of another turbine of 5,000 kilowatts capacity, new boilers and machinery for its general plant.

The Carnegie Steel Co. has closed negotiations for a high-speed bucket crane, for installation in the Homestead works. The crane, which is an unusually fast one, will be used in handling slag from the blast furnaces at that plant.

Galvanized iron roofing, metal lath, electric light and fire equipment, planing mill machinery, extensive piping connections, belting, metal lathe, drill press and sprinkler system will be required for the rebuilding of the Fraser lumber mills at Fredericton, N. B.

Power Plant Equipment

F. F. Thill, Wheaton, Minn., is remodeling his shop and will install new power machinery.

The Anderson Hardware Co., Dickson, Tenn., is considering the establishment of a cordage mill, and will need power and special machinery.

The Auburn Converting Co., Auburn, N. Y., is inquiring for a 5-horsepower motor, three-phase, 1,800 or 2,000 revolutions.

W. E. Schanklyn, 701 East Forty-seventh street, Chicago, is in the market for a second-hand ¼-horsepower alternating current 110-volt motor.

The Suburban Ice Co., La Grange, Ill., is inquiring for a generator, direct connected to steam engine, voltage 110; capacity, about 50 light, complete with switchboard, etc.

L. Jacobson, 1908 North Fortieth street, Chicago, is inquiring for a small nickel and coppering outfit; also an alternating current 10-horsepower motor.

The Louisville Cotton Mills Co., Louisville, Ky., will probably purchase a generator and motors for the operation of a part of its machinery. Philip S. Tuley is president of the company.

The Sierra Mercantile Power & Mining Co., Sierra City, Cal., is arranging to build an electric power plant in the spring, for the operation of the Sacred Mound mine and mill.

Improvements estimated to cost about $25,000 have been recommended for the municipal electric light plant of South River, N. J. The board of public works has the matter under consideration.

The Tygart Valley Water Power & Electric Co., which was recently incorporated at Elizabeth, Ky., has organized for business, and will build a water power plant on Tygart creek, near Carter, Ky. M. E. Ratcliff is one of those interested.

The Indiana legislature is considering the appropriation of enough money to enable new boilers to be installed at the power house of the state reformatory at Jeffersonville. Maj. David C. Peyton is superintendent of the reformatory.

The Anglo - American Mill Co., Owensboro, Ky., has completed plans for the construction of an addition to its plant, and will purchase the necessary equipment in the immediate future. It manufactures flour milling machinery.

Westinghouse, Church, Kerr & Co., Pittsburgh, have taken the general contract for a round house and repair shop, to cost $150,000, and a power plant and boiler house, to cost $100,000, to be erected at Communipaw, N. J., for the Central Railroad of New Jersey.

The J. L. Skeldon Co., Toledo, O., has secured the contract for installing a power plant at the Garford Co., Elyria, O., for the Willys-Overland Co. The plant will be 1,000 horsepower installation and will include boilers, engines, generators, heaters, pumps and high pressure piping.

The power machinery, machine tools and spinning equipment of the Hope Worsted Mill Co., Louisville, Ky., will be sold at public auction March 3, by Special Master Thomas A. Branham. The property represents an investment of several hundred thousand dollars.

The Kentucky Utility Co., Lexington, Ky., is planning the purchase of an electric light plant at Owingsville, Ky. The plant will be enlarged and a traction line built to Mt. Sterling, Ky. The same company has purchased the lighting plant at Eminence, Ky., and plans to enlarge and extend the system considerably.

The Narragansett Electric Lighting Co., Providence, R. I., contemplates the installation this year of a complete new arc lighting system, a new street lighting system and transmission line to Narragansett Pier, substations for distributing centers and a new boiler house and foundations. The company has engaged new office and show rooms in the Turk's Head building, now in process of construction.

The Insull interests, Chicago, which recently organized the Middle West Utilities Co., and took over a number of public service properties in southern Indiana and Kentucky, is now understood to be back of the Dix River Power Co., which is planning the construction of a hydro-electric power plant on the Dix river in central Kentucky. L. B. Herrington, Richmond, Ky., is the president of the power company.

The Republic Iron & Steel Co. has plans under way for improvements at its mines on Red Mountain at Raimund, near Bessemer, Ala., to expedite and make more convenient the handling of ores mined. It is understood that electricity will be installed to take the place of steam. Some of the heaviest work will still be done by steam power, but the introduction of electric motors will reduce the number of men employed.

Bids Asked

Sealed proposals for structural steel will be received at the office of the general purchasing officer, Isthmian Canal Commission, Washington, D. C., until 10:30 a. m., Feb. 25, at which time they will be opened in public. Blanks and general information relating to this circular (No. 759) may be obtained from the commission office.

Hamilton, Ont., is calling for tenders for 12-inch high pressure flanged pipe; 12-inch bell and spigot pipe, high pressure; 12-inch, 16-inch and 24-inch special castings for high and low pressure service. Tenders are to be addressed to Mayor John Allan.

The treasurer of the town of Sutherland, Sask., asks for tenders up to Feb. 24 for a large quantity of material needed for the waterworks and sewer systems, including 8,650 feet of 12-inch steel pipe; 9,775 feet of 10-inch, 4,000 feet of 8-inch, and 18,800 feet of 6-inch steel or cast iron pipe; in addition to vitrified sewer pipes.

Sealed proposals will be received at the bureau of yards and docks, navy department, Washington, D. C., until Feb. 21, for extension to foundry at the navy yard, Portsmouth, N. H. Estimated cost, $12,000. Plans and specifications can be obtained on application to the bureau of the commandant at the navy yard named.

The Hydro-Electric Power Commission of Ontario is calling for tenders for galvanized steel towers, spe-

cial crossing towers, copper and aluminum cable, insulators, galvanized malleable iron and galvanized pressed steel clamps required in the construction of about 125 miles of transmission line to operate at 110,000 volts. Hon. Adam Beck, Toronto, Ont., is chairman of this commission.

The United States treasury department, O. Wenderoth, supervising architect, advises that the following construction work and furnishing of equipment is open for sealed proposals:

Installation, complete, of an electric passenger elevator in the United States post office and court house, at North Platte, Neb.; proposals received until Feb. 27.

Construction, including plumbing, gas piping, heating apparatus, electric conduits, wiring apparatus, interior lighting fixtures, and approaches of the United States post office at Brookings, S. D.; proposals received until March 14.

Construction, complete, including plumbing, gas piping, heating apparatus, electric conduits and wiring, interior lighting fixtures, and approaches, of the United States post office at Waukesha, Wis.; proposals received until March 15.

Construction, complete, including mechanical equipment and approaches of the United States post office, at Bristol, Pa.; proposals received until Feb. 26.

Extensions, remodeling, etc., including mechanical equipment and approaches, of the United States post office and court house at Springfield, Mo.; proposals received until March 13.

Construction, complete, including mechanical equipment and approaches, of the United States post office at Denison, Ia.; proposals received until March 17.

Recent Sales

The Walter O. Amsler Engineering Co., Wabash building, Pittsburgh, has received an order from the American Plate Glass Co., Kane, Pa., for six gas producers and four combination gas and air reversing valves.

Bridge News

Contracts for two bridges on the Grand Trunk Pacific railway over the Assiniboine river have been awarded to the Hyland Navigation & Trading Co., of Winnipeg, Man.

The Canadian Northern railway has decided to build into St. Catharines, Ont. A railway and high-level vehicular bridge across the old canal to the center of the city will be built.

The fiscal court of Hopkins county, Madisonville, Ky., will probably build a number of 40-foot steel bridges. Address the county engineer.

A report on the work carried out last year on the western lines of the Canadian Pacific railway shows that the 3,000-foot bridge over the South Saskatchewan river was opened to traffic, while three-fourths of the work on the high level bridge at Edmonton, Alta., was completed. Buildings in connection with the Ogden shops were finished and machinery and staffs are being organized for an early opening.

The Bates & Rogers Construction Co., Spokane and Chicago, has been awarded a contract by the Grand Trunk Pacific railway for the construction of all bridges and tunnel lining on the line between Prince Rupert and Edmonton, Alta. The cost of the work is estimated at $2,000,000. The first work on the job has been started by the company, bridge gangs and tunnel lining crews having begun operations both at Edmonton and a short distance east of Prince Rupert.

Structural Contracts

Among structural steel contracts pending in Detroit is one for a proposed 14-story hotel to be erected by David Stott and others, for which Marshall & Fox are architects.

The Snead Architectural Iron Works, Louisville, Ky., has the contract for the structural material being used on a bottling plant of the Oertel Brewing Co. of that city.

The approximate steel tonnage that will be used by the United Iron Works Co., Springfield, Mo., for the hydro-electric power house on the White river, near Branson, Mo., is 100 tons. (Noted Feb. 6.)

The George A. Fuller Construction Co., New York, has the general contract for the erection of a 15-story office building at Main and Upper streets, Lexington, Ky., for the Fayette National bank. A large tonnage of structural iron will be used.

The reinforced steel to be used in the new building of the Lippincott Co., 42-50 Main street, Cincinnati, has been awarded to the Cincinnati Iron & Steel Co., of that city. The contract amounts to about 300 tons.

A contract for several hundred tons of structural steel will be let soon by Architect Lou Ditto, of Cincinnati, for use in the seven-story addition to the Munro Hotel, that city. The new addition will be 75 x 87 feet and will give the hotel a total of 120 guest chambers.

Two cars of structural steel have reached Fort William, Ont., to be used in the erection of the main buildings of the Canada Car & Foundry Co., for which the Dominion Bridge Co. has the contract. Work is being rushed, so that the plant will be completed by spring.

The Morgan Construction Co., Worcester, Mass., engineer and builder of rolling mill and wire-drawing machinery, has the contract to build a wire-drawing plant for the Monterey Iron & Steel Co., Neuvo Leon, Mex. The plant will be the first wire mill to be erected in Mexico, and will produce nails, barbed fence wire and telegraph wire. Work on the contract will be begun at once and the equipment will be shipped to Mexico when finished and set up under direction of employes of the Worcester plant. The order was secured in face of the heaviest foreign competition and at a figure considerably in excess of those submitted by foreign bidders.

The McClintic-Marshall Construction Co., Pittsburgh, has taken a contract for a new merchant mill to be built by the Wisconsin Steel Co., South Chicago. About 500 tons of steel are involved. Several important inquiries for fabricating material are pending.

New Buyers

The American Road Machinery Co. has filed a certificate of incorporation at Dover, Del. The company will make road machinery.

Farm implements will be manufactured by the Covington Mfg. Co., Headland, Ala., incorporated recently with a capital of $10,000.

The Edwards Engineering & Mfg. Co., engineer, Newark, N. J., has been organized with a capital of $220,000 by Douglas F. Johnson, Durwald E. Burchall and Mansfield Ferry.

The Vicksburg Self-Heating Iron & Mfg. Co., Vicksburg, Miss., has been incorporated with a capital of $10,000 by T. R. Foster, Harry E. Rice and others.

The Aluminum Castings Co., Indianapolis, Ind., has been organized with a capital of $50,000 to manufacture and sell aluminum, by W. M. Johnson, J. F. Bailey and A. Potts.

The DeKalb Chemical Works, DeKalb, Ill., has been incorporated with a capital of $10,000, by A. H. Harrison, P. N. Joslin and H. W. McEwen.

The Universal Concrete Pile Co., Jamestown, N. D., has been incorporated by Frank Henderson, J. W. Britt and C. S. Buck, all of Jamestown, with a capital of $100,000.

The Acme Refrigerator Co., Hammond, Ind., has been organized with a capital of $10,000 to manufacture and sell refrigerators, by William Wolter, C. B. Lewis and A. E. Bosse.

The North Electric Co., Chicago, has been incorporated with a capital of $2,500 to do a general electrical contracting business. The incorporators are Max A. Claus, Henry G. Eisert and Elsie Claus.

The Chandler Motor Co. has been organized, chiefly by Detroit men, and is preparing to establish a plant in Cleveland. A light six-cylinder car will be manufactured. Officers of the

company, a number of whom were formerly connected with the Lozier Motor Co., of Detroit, are: President, F. C. Chandler; vice president, C. A. Emise; treasurer, Samuel Regar; secretary, W. S. M. Mead; engineer, J. V. Whitbeck, and superintendent, J. R. Hall. The company expects to turn out 2,000 cars the first year.

The Spring Steel Fence & Wire Co., Anderson, Ind., has been organized with a capital of $300,000, to manufacture wire fences, etc., by William S. Poling, J. F. Stanley and T. H. Lane.

The Multiple Electric Co., Chicago, has been incorporated with a capital of $2,500 to manufacture and deal in electrical supplies. The incorporators are William J. Krueger, Ralph C. Bronson and Anges J. Hois.

The Simplex Appliance Co., Indianapolis, Ind., has been incorporated with a capital of $10,000, to manufacture and sell gas lighting appliances, by William C. Hamilton, William Lee Bird and Isaac Born.

The Jefferson Ore Co. has been incorporated at Birmingham, Ala., with a capital of $3,000, by Thomas Dozier, president; R. G. Slocumb, vice president, and A. F. Kennemer, secretary and treasurer.

The Herrick & Cowell Co., New Haven, Conn., has been incorporated with a capital of $10,000, to manufacture a line of machinery; by Louis Herrick, W. G. Cowell and William N. Parsons, all of New Haven.

The National Tire & Repair Co., Chicago, has been incorporated with a capital of $3,000 to do a general automobile repairing business. The incorporators are William E. Eckert, E. H. Tilson and Paul H. Ringo.

The Kingston Construction Co. has been formed, with George Wright, of the firm of Campbell & Wright, engineers, Kingston, Ont., as general manager. It will manufacture cement products.

The Western Steam Navigation Co., Portland, Me., has been incorporated with a capital of $1,000,000, to engage in a general transportation and steamship business. Officers are: President, A. A. Richards; clerk, J. E. Manter; treasurer, C. G. Trott.

The Factory Products Co., Chicago, has been incorporated with a capital of $10,000 to do a general metal manufacturing business. The incorporators are K. Franklin Peterson, Harold T. Peterson and Hubert E. Page.

A. L. Garford, of Elyria, O., former head of the Garford Automobile Co., Elyria, is at the head of another company just incorporated with a capitalization of $100,000. A plant will probably be located in Toledo, O., where, it is said, a new process for producing aluminum of special strength will be developed. Others interested in the enterprise are: Walter F. Brown, Sigmund Sanger and E. C. Froelich. Mr. Garford sold control of his Elyria plant a short time ago to the Willys-Overland Co., Toledo.

The Concrete Roofing Tile Machinery Co., Madison, Wis., has been organized with a capital of $50,000, by I. A. Cole, C. N. Robbins and C. E. Mullen.

The Virginia Motor Machine Corporation, Petersburg, Va., has been organized with a capital of from $3,000 to $10,000, by W. L. Wells, president; C. F. Dunton, vice president; J. B. Andrews, secretary-treasurer.

The Veta Mfg. Co., Camden, N. J., has been incorporated with a capital stock of $30,000, to manufacture stoves, etc., by William R. Hollinshead, Sylvester Minch and Russell H. Minch.

The Western Pump & Engineering Co., Chicago, has been incorporated with a capital of $3,000, to manufacture and deal in pumps, air compressors, power plants, etc. The incorporators are J. E. Bond, R. C. Wise and C. B. Moore.

The Barnes Safe & Lock Co., Pittsburgh, has taken out a Delaware charter, with a capital of $100,000, to manufacture, sell and deal in safes, vaults, etc. The incorporators are T. Brown Newall, John A. Newall, A. George, R. Askin, all of Pittsburgh.

The Vacuum Exhaust Engine Co., Chicago, has been incorporated with a capital of $50,000 for manufacturing and dealing in engines and machinery. The incorporators are Clinton A. Johnson, Ole C. Olsen and Ralph H. Burdick.

The Hay Walker Brick Co., a $1,000,000 corporation, has been organized to take over the building brick department of the Harbison-Walker Refractories Co., Pittsburgh, by Hay Walker, president; E. E. McCoy, secretary-treasurer, and C. J. Henderson, eastern manager.

The Steelage Furniture Co., Inc., New York City, has been organized with a capital of $25,000, to manufacture steel furniture, by Charles C. Carroll, Walter L. Munson and David C. Ushkow, all of 320 Broadway, and Charles Pechner, 302 Broadway.

The Monitor Iron Foundry Co., Inc., Brooklyn, N. Y., has been organized with a capital stock of $5,000 and will operate a general foundry and machine shop. The incorporators are Harry Bloom, 214 East Eighteenth street, New York City; Adolph Bangser, 140 West Eighty-second street, New York City, and Jacob Breen, 166 Henry street, New York City.

The Empire State Steel Products Co., Inc., New York City, has been organized with a capital of $25,000, by Frank Adgate, 4 North Tenth avenue, Mt. Vernon, N. Y.; Frederick C. Dunham, 1811 Dorchester road, Brooklyn, and Robert G. Jeffrey, Hackensack, N. J.

The Interstate Heater Co., Cleveland, has been incorporated with a capital of $15,000 to manufacture heating apparatus, by Edward Younger, Herbert O. Evans, H. E. Gray, F. G. Castle and S. E. Sackerman.

The William McClellan Co., Cleveland, manufacturer of files, has been incorporated with a capitalization of $50,000. The firm is now William McClellan & Co. It intends to enlarge its plant at 3444 Hamilton avenue in the near future.

The Zero Ice Co., Joliet, Ill., has been incorporated with a capital of $50,000 for the purpose of making and selling artificial ice and operating a cold storage plant. It is reported that the company expects to build a plant for which considerable machinery will be needed.

The Sterling Hardware Co., Bluefield, W. Va., has been incorporated with a capital of $100,000, to manufacture and deal in hardware of every description. The incorporators are R. C. Morrison, E. H. Smith, J. H. Custard, J. H. Hardy and F. M. Archer, all of Bluefield.

The Hannibal Car Wheel & Foundry Co., Hannibal, Mo., has been organized for the purpose of taking over the C. A. Treat Mfg. Co., and the plant will be increased, it is reported. Incorporation papers will be taken out soon, with a capital stock of $150,000. Those interested are: A. R. Smith, D. D. Mahan, W. J. Dakin, J. P. Hinton, J. P. Richards, J. A. Stone and W. K. Weaver.

The Stafford Aluminated Auto Lamp & Number Co., Chicago, has been incorporated with a capital of $50,000 to manufacture and deal in automobile lamps, numbers and accessories. The incorporators are William Doran, E. H. Pillard, H. M. Parks, S. Stafford and F. W. Schaub.

The certificate of incorporation of the White Adding Machine Co., New Haven, Conn., has been approved and the company will engage in the manufacture of adding machines with an authorized capital stock of $1,000,000. The incorporators are Rollin S. Woodruff, Max Adler, Roger P. Tyler, Edward S. Swift and Charles Whales.

The Domestic Brick & Tile Co. has been formed at Montreal, Que., with

a capital of $500,000. Its new plant will be built near Lapraire, Que., and will be ready for operation next August. The directors are Edward Sheppard, D. Masson, B. E. Sprague, A. W. Powell, H. Mc. K. Bellew and H. Lampard.

The certificate of incorporation of the John M. Page Co., Naugatuck, Conn., has been approved and the concern will engage in the hardware business; $30,000 of its authorized $50,000 capital is already subscribed. The incorporators are: Iden F. Richardson, Henry E. French and Anna F. Richardson.

The Sharp-Hughes Tool Co., Houston, Tex., was recently incorporated with a capital of $300,000, to take over the business of the Houston firm of Sharp & Hughes, owners of the patents of an exclusive right to manufacture a rotary drilling bit, invented by Howard R. Hughes, a member of the firm. J. S. Cullinan is president and A. R. Hughes general manager.

The Defiance Welding Co., Defiance, O., recently organized, advises that it will manufacture steel poles and metal specialties. The officers of the company are: President, H. D. Bokop; vice president, A. W. Martin; secretary and treasurer, F. A. Bokop. The company will be in the market from time to time for sheet and bar steel and occasionally for various kinds of metal working machinery, although provision has been made for the greater part of its requirements.

It is planned by purchasers of the plant and equipment of the Montpelier Cup & Metal Works, Hartford City, Ind., which, after being operated under a receivership, was sold for $5,000, to improve the plant and continue the operation. It manufactures flouring mill equipment and oil cups. The purchasers are the Farmers' Deposit bank, the First National bank, A. T. McDonald and James O'Donnell, principal creditors.

The Crooks-Uhle Co., Bucyrus, O., has increased its capital stock from $10,000 to $30,000, and changed its official name to the Bucyrus Forge & Machine Co. The company has decided to engage in the drop forge business, and will install, as quickly as possible, a large steam hammer, a boiler and a furnace, besides several other pieces of machinery. The company has taken over a large amount of work from the T. & O. C. Railroad Co., and the Marion Steam Shovel Co., which has necessitated this addition to the plant.

C. F. Heinss and H. E. Oskapp, of Cincinnati, will establish the Huntington Machine & Foundry Co., at Huntington, Ind., in the near future. The plant will manufacture punches and shears and will have a foundry in connection. In all about four buildings will be built. Huntington citizens have subscribed $50,000 worth of stock in order to secure this company and the Cincinnati men also were given a factory site exempt from taxes, and are allowed free city water for a limited term of years. The total capital of the company will be $125,000.

The Tri-State Traction Co. has been incorporated with a capital of $200,000, to construct a trolley line from Quincy, Adams county, Ill., to Hamilton, Hancock county, Ill. The principal office of the company is at Warsaw, Ill. The incorporators and the first board of directors include J. Henry Bastert and Henry T. Dayton, of Quincy; John M. Hungate and Richard O. Marsh, of Warsaw; Cornelius T. Dougherty and Earl W. Wood, of Hamilton. Definite plans have not been learned, but it is reported that the line will be an interurban with third rail or overhead trolley construction.

The Benedict-Proctor Mfg. Co., Toronto, Ont., has been incorporated with $25,000 capital at Ottawa to deal in and manufacture all kinds of metal goods and ware. Among its incorporators are Leo George and William Proctor, Toronto, and Harry Benedict, manufacturer, of Syracuse, N. Y.

The Lake Erie & Quebec Transportation Co., Ltd., Montreal, Que., has been incorporated at Ottawa with a capital stock of $50,000, to manufacture, buy, sell and maintain ships, vessels, tugs, engines, boilers, tackle, machinery, etc. Among the incorporators are Francis Bush and George Drennan, Montreal.

The business of the Brunelle Boiler Co. Worcester, Mass., manufacturer of the Brunelle steam heater, has been bought by a syndicate of Canadians, who will incorporate with a $100,000 capitalization and establish headquarters in Three Rivers, Que. The business was established 19 years ago by F. X. Brunelle, the inventor of the heater, but owing to Mr. Brunelle's lack of capital, the business has been conducted on a small scale and the use of the heater confined to a small section of New England. The new concern, however, plans to do an extensive business, and has elected temporary officers as follows: President, Joseph A. Jutras; vice president, John Boisvin; secretary-treasurer and general manager, Arthur Heroux, all of Canada.

The George A. Knaak Co., Oshkosh, Wis., manufacturing mechanical specialities and operating a machine shop, has been dissolved by mutual consent of the stockholders and retired from business. George A. Knaak, president and treasurer, has organized the Wilboken Mfg. Co., at Milwaukee, which has leased the machine shops at 246-252 Reed street and already has engaged in the manufacture of motion picture machines, guards, air compressors, air shock absorbers for motor cars, and other articles. All of the equipment in the Oshkosh works has been transported to Milwaukee and installed in the Wilboken shops. The Wilboken Co. is capitalized at $50,000. Mr. Knaak is a well known inventor and the products of the new as well as the old concern are principally of his own invention and design.

New Incorporations

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

The following manufacturing companies have filed articles of incorporation:

The Hamilton Corundum Co., Ltd., Hammer Rapids, Ont.; $200,000.

Aeroplanes, Motors & Equipment Co., Inc., Manhattan, New York City, manufacturer, has been incorporated with a capital of $20,000; by Bernard Cowen, Max Miller and Maurice Lazonne, 88 Bleeker street, New York City.

Increased Capital

The Detroit Foundry Supply Co., Detroit, has increased its capital stock from $40,000 to $250,000.

The Southern Textile Co., Paducah, Ky., has recently increased its capitalization to $60,000, and may enlarge its facilities for manufacturing knitting machinery. F. E. Lack is president of the company.

The Davis Sewing Machine Co., Dayton, O., has issued $600,000 first mortgage, 6 per cent bonds, to complete improvements and for additional capital. During the past 10 years the company has spent $1,800,000 on development work.

Steps will be taken at the postponed annual meeting of the Pratt & Cady Co., Hartford, Conn., to be held Feb. 11, toward the reorganization of the company. An increase in the capital stock from $90,000 to $400,000 is planned. A receiver has had charge for some time.

The Thompson Electric Co., Cleveland, has increased its capital stock from $10,000 to $50,000, to provide for its increased business. A. J. Thompson is president of the company.

Charles E. Pope, formerly mechanical engineer with the National Malleable Castings Co., Cleveland, is secretary and treasurer. The company will manufacture the Thompson automatic safety cut-out hangers for arc lamps, and large tungsten units and clusters. It will put on the market shortly a high voltage series of cut-out hangers for street lighting. The offices of the concern will continue at 337 Superior avenue N. W., Cleveland.

Recent Contracts

The Philadelphia Co. has closed negotiations for about 8,500 tons of iron pipe, to be used in connection with work in the West Virginia oil fields.

The Kerr Turbine Co., Wellsville, N. Y., represented by R. M. Rush, 2137 Oliver building, Pittsburgh, has been awarded contracts by the Colonial Ice Co., that city, for six steam turbines for brine circulation.

The Superior Rolling Stock Co., Ltd., Ottawa, Que., has made a conditional sale of a large amount of rolling stock to the Algoma Central & Hudson Bay Railway Co., a copy of the contract having been deposited in the office of the secretary of state at Ottawa.

Charles T. Topping, Pittsburgh representative of the Ernst Wiener Co., has taken a contract from the Blaw Steel Construction Co., Pittsburgh, for a complete industrial railroad equipment for the new plant at Hoboken, Pa.

The Toledo Shipbuilding Co., Toledo, O., was the successful bidder for the contract to build a steel ferryboat for the Walkerville Ferry Co., Walkerville, Ont. The boat will cost about $100,000 and will be 105 feet long.

The contract for the elevators and equipment for the new Hotel Gibson, Cincinnati, has been let to the Warner Elevator Co., of that city. It includes all of the elevators from the dumb waiter hoist to the passenger and freight lifts.

The Blair Engineering Co., New York City, has closed a contract with the Inland Steel Co., Indiana Harbor, Ind., to equip its open-hearth furnace with Blair ports. The Blair company recently closed a contract with the United Steel Co., Canton, O., to equip all of its furnaces with Blair ports.

The Wilson-Snyder Centrifugal Pump Co., Pittsburgh, has been awarded a contract for an 8,000,000-gallon turbine-driven centrifugal pumping unit for the American Steel & Wire Co., to be installed at the Central furnaces, Cleveland. The pump will be driven by a 275-horsepower Kerr economy steam engine, manufactured at Wellsville, N. Y., through Falk reduction gears.

Trade Notes

The Freeman Fire Brick Co. has had its address changed from Stevenville, O., to New Cumberland, W. Va.

The Washington Coal & Coke Co., Pittsburgh, has moved its offices to the First National Bank building, that city.

The Globe Automatic Sprinkler Co., Cincinnati, has moved its offices from the First National Bank building to 1610 Reading road.

The Interstate Railway Switch & Frog Co. has changed its location from Salisbury, N. C., to Lexington, N. C.

The Garry Iron & Steel Co., Youngstown, O., has engaged new office quarters at 521 West Twenty-third street, New York City.

The Wheel, Shaft, Top & Hardware Mfg. Co., of Cincinnati, has changed its name to the Wheel Top & Hardware Co.

The Kilburn & Lincoln Co., and the Mechanics Foundry & Machine Co., Fall River, Mass., have granted an increase of 50 cents per day to their molders, making wages $3.

The American Steel Foundries, Chicago, has declared a quarterly dividend of one-half per cent, payable March 31, to holders of record Feb. 7.

John Hill, one of the organizers of the Hill & Griffith Co., Cincinnati, manufacturer of foundry supplies and equipment, has disposed of his interest in that company.

The Clark Motor Car Co., Louisville, Ky., is planning the manufacture of a brass automobile specialty. Address F. S. Clark.

Smith & McCoy, Norfolk, Va., marine railway and repair shops, and ship and engine builders, advise that they expect to change their name to F. O. Smith Ship Building & Dry Dock Co.

The plant of the Western Iron Manufacturers, Ltd., Calgary, Alta., commenced operations last week. Its product will include well-drilling machinery, road-grading machines, and brush cutters.

The Badger Foundry Co., Racine, Wis., has just completed the construction of a large addition to its plant.

The Standard Mfg. Co., Bridgeport, Conn., has purchased the entire line of drilling and gear cutting machines of the Dwight Slate Machine Co., Hartford, Conn. This purchase includes the name, business, right to manufacture, good will, patents, patterns, jigs and fixtures, and finished and unfinished parts.

The Holbrook-Armstrong Iron Co., Racine, Wis., has added 60 x 80 feet floor space to its foundry and is installing a 20-ton Whiting cupola and a 5½-foot Root blower.

The Ideal Concrete Machinery Co., South Bend, Ind., will move its plant to Cincinnati some time during next April. The new location will probably be in Camp Washington, a suburb of Cincinnati.

The old plant of the Bellingham Foundry Co., Bellingham, Wash., has been reopened by R. E. Runkel, its purchaser, under the name of the Bellingham Iron & Steel Foundry. It has been remodeled and a converter installed.

Charles W. Hubbard Jr., for 16 years president of the American Axe & Tool Co., Pittsburgh, has resigned. J. R. Kelly, who has been identified with the company for a number of years, has been elected Mr. Hubbard's successor.

The Terry Steam Turbine Co. announces that on and after Feb. 15 the general sales office will be removed to the works at Hartford, Conn., and will be under the direction of Norman L. Snow. The New York office will remain under the charge of Frederick D. Herbert, as in the past.

The Lunkenheimer Co., Cincinnati, O., gave its fifty-first annual reception to its employes and their families at the Armory, that city, recently. Over 4,500 people attended, among which were included practically every person employed by the plant in both the offices and the shops.

Dantzler Foundry & Machine Works, Gulfport, Miss., which has taken over the plant of the old Watkins Machine & Foundry Co., at Hattiesburg, Miss., has begun overhauling and improving the property and is operating. D. E. Morris is manager.

The Schaefer Mfg. Co., Birmingham, Ala., has under advisement several important plans for strengthening the financial resources of the company, in order to improve its plant at North Birmingham and to develop and expand its business generally.

The North End Foundry Co., Milwaukee, Wis., which suffered serious damage to its foundry by fire a month ago, is negotiating with the Beaver Dam Foundry Co., Beaver Dam, Wis., for the purchase or lease of its plant. The stockholders of the Beaver Dam company recently decided to dispose of its holdings,

as the plant, which produces gray iron castings, has been idle since Jan. 1, because of lack of orders. A proposition was made to the Milwaukee company, which had not come to a definite conclusion concerning the erection of a new foundry, and it received encouragement which is believed to mean that the North End company will accept and move to Beaver Dam.

The Defiance Screw Machine Co., Defiance, O., is now engaged in putting the second story of its plant in shape for light machines, making room for the heavier new machines on the first floor. The machines are electrically-driven. The business of the concern is largely grinding, cutting and shaping metal parts for automobiles.

The Buckeye Products Co., Cincinnati, dealer in foundry supplies, has leased the property at 919-921 East Fifth street, that city, and will move to this new location in April. The company was seriously handicapped recently by the high stage of the Ohio river, and has secured the new location in order to avoid this inconvenience in the future.

The Buckeye Churn Co., Sidney, O., advises that its recent increase in capital stock from $150,000 to $250,000 was made to take care of an import proposition on lamps, stoves, hardware and Primus cream separators, which are manufactured in Stockholm, Sweden, for which the Buckeye company is American sales agent for the United States and Canada.

The Engineers' Society of Western Pennsylvania, with headquarters in Pittsburgh, has arranged for an inspection of the Panama canal the latter part of next month. Members of the committee in charge are W. C. Coffin, E. K. Morse, S. A. Taylor, and E. K. Hiles, secretary of the organization. A party of 150 is planning to take the trip.

M. Rumely Co., Laporte, Ind., in confirming the report that the company has purchased the assets, plant and business of the Northwest Thresher Co., Stillwater, Minn., advises that the business at that place will hereafter be known as M. Rumely Co., Stillwater. The company is now making at that point on an evarage of six Gaspull farm tractors per day.

Robinson, Cary & Sands, St. Paul, have been appointed Northwestern agents for the Terry Steam Turbine Co., Hartford, Conn., and will give their particular attention to Minnesota, and North and South Dakota territory. The Refrigerating & Engineering, Ltd., Somerset block, Winnipeg, have been appointed agents for the company for the territory represented by Manitoba, Alberta and Saskatchewan. The Terry company already has agents at Toronto and Montreal.

The Galion Metallic Vault Co., Galion, O., advising in regard to the recent increase in its capital stock, says that it is not its intention at present to offer this stock for sale, but rather to hold it as treasury stock for the needs of the company. The company recently built a large addition to its factory and is now ready to take care of a large output.

The Norton Co., Worcester, Mass., has taken occupancy of its new administration and research laboratory building, which was dedicated at the annual sales conference last month. The old brick office building and equipment was abandoned when executive officials, department heads and clerks of the company took up their work in the new building.

Frank Bros. Iron & Metal Co., Detroit, Mich., has just moved into its new plant on the Grand boulevard, Orleans & Grand Trunk railroad, that city, where the company will be in a position to handle an immense volume of business. This plant is more efficiently adapted to conform with the requirements of the company's line than its old plant, and will enable it to render very prompt service.

The Trumbull Steel Co., Warren, O., advises that its new plant now building in that city will be ready to begin operating by July 1, figuring conservatively, but that every effort will be made to get started before that date. The company will manufacture tin and terne plate, genuine charcoal iron ternes, black and galvanized sheets, flat and corrugated long terne sheets and formed roofing products.

The Peterson - National Co., Chicago, core oil, dry core compound and parting, has declared its annual dividend on its preferred stock, payable Feb. 1. The company announces that it is doing a splendid business and last week began operating its new dry core compound and parting works in Buffalo, said to be one of the largest dry core compound plants and the largest parting plant in the United States.

As a consequence of the establishment of the new steel city of the United States Steel Corporation near Sandwich, Ont., the plant of the Canada Steel & Wire Co., Hamilton, Ont., next fall will be moved to that place. It has been in operation in Hamilton for 11 years and built up a large business in the manufacture of wire fencing. Some months ago the Steel Corporation in view of its projected Canadian enterprise quietly acquired a controlling interest.

The Tivani Electric Steel Co., Ltd., Belleville, Ont., advises that it is erecting a steel plant at that place to treat titaniferous iron ores of Hastings county, and that it expects to be in operation early next month. The company will operate under the Evans-Stansfield processes, which are protected by patents in this country and Canada. T. W. Evans is president of the company and Dr. A. Stansfield, of McGill University, professor in metallurgy, is interested with him in the process.

At the annual meeting of the National Association of Manufacturers of Sheet Metal and Building Material, which was held at the Sinton hotel in Cincinnati, on Feb. 4, the following officers were elected: President, George Nash; vice president, W. H. Abbott; secretary and treasurer, T. J. Fernly. This was the first meeting ever held by the association in Cincinnati, and was largely attended. The principal item of discussion was the present shortage of sheet steel, and how the condition could be improved.

The Burden Sales Co., with general offices at 30 Church street, New York, and branch sales offices in Chicago, Atlanta and St. Paul, has been organized by Gilbert H. Pearsall, president; H. H. Linton, vice president, and Craig Graves, secretary and treasurer, to be a distributor of the products of the Burden Iron Co., of Troy, N. Y. In connection with the general offices of the Burden Sales Co. will be the eastern sales office of the Jacobs-Shupert United States Firebox Co. and the Oxweld Railroad Service Co. Notice of Mr. Pearsall's election to the vice presidency of both these companies appeared in THE IRON TRADE REVIEW some months ago.

General Industrial

An underground telephone system at a cost of $2,500,000 is contemplated by the Bell Telephone Co. of Canada, at Montreal, Que.

The Toronto Railway Co. will this season build 75 new cars of the most modern type.

A 10-ton traveling crane has been installed in the new sheds of the Victoria White Granite Co., Keene, N. H.

The machinery market in the northwest is brisk. The Caldwell Machinery Co., Tacoma, reports a very active business with bright prospects for continued good trade.

The Sherman Cooper Co., Ltd., Toronto, Ont., organized in 1906 with a capital of $40,000 for the manufac-

ture of gasoline engines, has assigned to Osler Wade.

Liabilities are placed at $78,347 and assets at $1,667 in a schedule filed by William D. Plumb, 1547 Commonwealth avenue, Bronx, New York City, formerly of Plumb & Scott, metal lathing.

The National Steel Car Co., Hamilton, Ont., has booked orders amounting to $3,500,000 in three months, and has begun delivering cars to the Canadian Pacific railway on a contract amounting to $1,500,000.

The final assessment of $16.80 a share on the stock of the United States Motor Co., and its subsidiary, the Columbia Motor Car Co., was payable Feb. 3. This is the fourth installment of $24, the levy of each of the three previous payments calling for $2.40.

The Leader Iron Works, Decatur, Ill., has laid switching tracks, installed cranes and erected a building for storage purposes, containing about 12,000 square feet, at Owego, Tioga county, N. Y., during the past year.

The Hendee Mfg. Co., Springfield, Mass., manufacturer of motor cycles, has bought a 10-acre tract near the Boston & Albany railroad tracks for future development. The company is said to contemplate the erection of an addition in the near future.

Work will commence as soon as the winter breaks on a railway from Edmonton, Alta., to Peace river crossing. The line will later be continued to Fort Murray and Fort Churchill. E. G. Wright, broker, of Montreal, is vice president of the company constructing the line.

Wealthy Canadians will put $2,500,000 into a project for purchasing coal land in Saskatchewan, the erection of gas producers, and the generation of power from gas engines. George D. Casson, Estevan, Sask., publicity commissioner, says the scheme will be in operation next summer.

The stockholders of the Mallory-Wheeler Co., lock manufacturer, New Haven, Conn., have voted to terminate its corporate existence. The company was for many years one of the largest producers of locks in the country, but its business has fallen off in recent years.

The 200 new ovens of the Sykesville Coal & Coke Co., Sykesville, Pa., in connection with the others in the Tyler district, will supply the entire coke requirements of the Rogers-Brown Iron Co. after July 1 in operating the six stacks in the Buffalo district.

The Chicago Steel Car Co., advising in regard to its reduction of the capital stock from $250,000 to $125,000, says that it is a close corporation with very few stockholders and none of the capital is on sale and the change in its capital was made to better suit its ideas.

Following the taking of a $1,000,000 order for ball bearings, the New Departure Co., Bristol, Conn., announced that the recently purchased plant of the Whitlock Coil Pipe Co., Elmwood, will be equipped and operated for the manufacture of ball bearings.

The Wisconsin Engine Co., Corliss, Wis., which recently filed a petition for a composition without adjudication in the federal court at Milwaukee, has ceased operating. The Wisconsin Trust Co., of Milwaukee, receiver, has appointed F. J. Kidd, secretary of the Corliss company, as general manager during the receivership.

The Concrete Engineering Co., Boston, which is erecting an eight-story building in Worcester, to be known as the Graphic Arts building, is a voluntary bankrupt, having filed a petition in the United States district court in Boston. Its liabilities are placed at $174,202, and its assets at $137,032.

George Challingsworth, W. J. Scholl and Louis Scheibel, of Youngstown, O., and John Shaffer, of Struthers, O., are promoting a corporation for the manufacture of cast iron soil pipe, and have secured a lease on the Hubbard foundry, which they will operate when the new company is duly incorporated and organized.

The Racine Aluminum Co., Racine, Wis., reports that it has received a large order for motorcycle engine castings from the Harley-Davidson Motor Co., of Milwaukee, which is unable, with its present facilities, to manufacture all of its own aluminum castings. Extensions now being completed by the Milwaukee company will provide the needed facilities.

Negotiations are under way for the establishment of motor works at Galt, Ont. Three Detroit men, one of whom is connected with the Abbott Motor Co., have offered to subscribe $25,000 to supplement $25,000 subscribed by the present owners of Canadian Motors, Ltd. The company will have a capital of $100,000, and will commence with 100 employes.

The Canada Iron Corporation, Ltd., Montreal, Que., of which T. J. Drummond is president, will shortly ship about 100,000 tons of hematite ore from Nictaux, N. S., to the United States and Europe. The ore will be shipped from Port Wade, where the Canadian government has expended $125,000 on the harbor, giving a depth of 26 feet at low tide. The Canada Iron Corporation, Ltd., has erected ore receivers holding 8,000 tons of ore.

The "Krank-Less" Starter & Mfg. Co., Cleveland, advises that it has been organized to manufacture the "Krank-Less" starter, speeder and gasoline saver. No factory will be built at present, but the company contemplates building later in the year. The officers are: President, D. D. Grissinger; vice president, F. A. Sweet, and secretary and treasurer, A. G. Freeman.

The plan of utilizing saw mill refuse for fuel in electric power and pumping plants, which was successfully inaugurated on the Mesabi range by the Virginia Electric Light & Water Co., Virginia, Minn., is to be carried out on a large scale by a company recently organized at Vancouver, B. C. Steam for heating purposes will also be furnished.

The Lumberman's Information Bureau, Tacoma building, Tacoma, Wash., reports every mill in the northwest running full time, some with orders booked ahead for six months. Lumber deliveries from Washington to the east and south are slow on all orders not booked months ago. The machinery houses are feeling the brisk trend of the lumber industry by orders for new machinery and equipment.

The Atlas Motor Car Co., Springfield, Mass., against which involuntary bankruptcy proceedings have been instituted by creditors with claims amounting to $1,147.08, is to be reorganized. The former plant will probably be leased from C. B. Whitney, of the Victor Sporting Goods Co., who recently bought it under foreclosure proceedings, and deliveries resumed within two months.

A syndicate has been formed, headed by Ambrose Monell, White, Weld & Co., E. C. Converse and W. E. Corey, directors of the United States Steel Corporation, and others, to erect and operate by product coke ovens in various parts of the country. Construction is to be begun this spring on initial plants at St. Louis and on Newark bay. It is reported that the St. Louis plant will consume about 400,000 tons of coal annually and the Newark Bay plant about 280,000 tons.

The St. Louis Car Wheel Co., St. Louis, Mo., has transferred its realty holdings to the Southern Wheel Co., in the consummation of the merger of the former concern with the Decatur Car Wheel & Mfg. Co., Birmingham, Ala., and the Atlanta Car Wheel & Mfg. Co., Atlanta, Ga. The St. Louis company has been doing business more than 40 years. The

merger of the three companies has been incorporated as the Southern Wheel Co., with a capitalization of $2,500,000.

The Twin City Rapid Transit Co., operating the street railway systems in Minneapolis and St. Paul, has announced that it will expend nearly $2,000,000 in improvements in the near future. The improvements will include a 15,000-kilowatt unit at the steam plant in southeast Minneapolis, a sub-station at Girard avenue and Lake street, a ten-way conduit between St. Paul and Minneapolis and the construction of 70 new large double-truck cars and 37 car bodies. The additional unit at the power plant will cost $300,000 and will bring the total capacity of the station up to 59,500 kilowatts. The new unit will be of the turbo type, generating at 6,600 volts, which will be raised to 13,000 through a transformer. The Girard avenue sub-station will be equipped with transformers and rotary converters and will serve the southwestern part of Minneapolis. The building will cost $20,000, and the equipment $75,000.

Miscellaneous

The Scholl Mfg. Co., 213 West Schiller street, Chicago, is inquiring for a second-hand quilting machine.

The commissioner of public works, St. Paul, Minn., has been authorized to ask for bids on an asphalt plant.

Plans are being considered at Virginia, Minn., for erecting a municipal gas plant.

Equipment for a sawmill will be required by J. A. Menzies, who has bought land for the plant at Merritt, Sask.

The board of trade of Fort William, Ont., is considering a proposition for the erection of a gas plant in that city.

The Spencer Wire Co., Worcester, and Spencer, Mass., has taken over the business of manufacturing wire flykillers and sink brushes, formerly conducted by Julian F. Bigelow, Worcester, and will push their sales extensively all over the world.

A steel car ferry being built for the Mackinac Transportation Co., at a cost of $300,000, was recently launched at the yards of the Toledo Shipbuilding Co., Toledo, O. The ferry is called the Sainte Marie and can be used as an ice crusher as well as car ferry.

The bureau of foreign and domestic commerce, at Washington, D. C., is in receipt of a communication from a consul of a foreign country stating that a European firm has written to him with a view to obtaining names and addresses of American works that manufacture bolts from malleable iron.

E. M. Messiter, 511 Boston building, Denver, Colo., is in the market for one second-hand threshing machine cylinder, concaves, bushings, drive pulley, plates, side castings and grates back of cylinder.

An ordinance is to be introduced in the Louisville, Ky., council, it is reported, requiring every other floor of a steel frame building in course of construction to be blanketed. This is the result of several fatal accidents on buildings now being constructed in the Kentucky city. The ordinance is said to have originated with the labor union interests.

The Pennsylvania railroad is testing a new electro-pneumatic air brake, perfected by Walter V. Turner, erstwhile rancher, now chief engineer for the Westinghouse Air Brake Co., Pittsburgh. The testing of the new device is being made on an experimental stretch of track in New Jersey. The electric brake is expected to cut down the stopping time of trains under way 25 per cent. Brakes will be operated by the engineer of the train.

Counsel for James P. Winchester and Howard T. Wallace, receivers of the Diamond State Steel Co., Wilmington, Del., who are excepting to the report of the master commissioner fixing compensation allowances in this receivership, have been granted a leave of 30 days by the court to put their objections into final form. This hearing came up before the federal court at Wilmington, Feb. 6. The commissioner in his report fixed $17,000 as reasonable counsel fees for the receivers instead of $25,000 asked, $20,000 as compensation for the receivers instead of $50,000 asked and declared that the balance to be distributed to creditors should be $89,772.26 instead of $68,304.41, the receivers' balance.

Fires

A fire in the premises of the Underwood Typewriter Co., Toronto, Can., recently caused damage to the amount of about $1,500.

Blackburn Bros. mica plant, on Creighton street, Ottawa, Ont., was destroyed by fire recently the loss being $15,000.

The plant of the Evered Foundry & Machine Co., Superior, Wis., was damaged by fire on Feb. 5, the loss being estimated at $1,500.

Fire did damage amounting to $4,000 at the Ottawa Pattern & Foundry Co.'s plant, Ottawa street, Ottawa, Ont., recently.

The steamheating plant and the warehouse of the N. Johannes & Sons Implement Co., Sedalia, Mo., was damaged by fire recently. The loss is estimated at $3,000.

The sawmill owned by the O'Connell Lumber Co., at Winlock, Wash., was destroyed by fire recently, at a loss of about $25,000. The mill will probably be rebuilt in the near future.

The automobile and equipment plant of the T. G. Northwall Co., Sioux City, Ia., was badly damaged by fire, recently. The damage is estimated at $35,000.

Damage amounting to approximately $30,000 was sustained by the American Steel & Wire Co.'s warehouses at Savannah, Ga., last week, from the fire which destroyed the wharves of the Merchants' & Miners' Transportation Co.

The plant of the Pennsylvania Coal & Coke Corporation, at No. 41 mine, Arcadia, Pa., was badly damaged by fire last week, causing a loss of about $25,000. The company is making extensive improvements at Arcadia, including the erection of a new boiler house and a power house.

The forge building of the Canada Forge Co., Ltd., Welland, Ont., was badly damaged by fire last week, entailing a loss of about $12,000. It is reported that a modern steel fireproof structure will be erected, providing increased capacity. A number of machines were damaged by the fire.

The plant of the Cribben & Sexton Co., manufacturer of stoves, 660-720 North Sacramento avenue, Chicago, was badly damaged by fire, Feb. 5. Only the mounting and nickel plating departments were affected, the machine shop and foundry not being damaged.

The plant of the Bollman-Wilson Foundry Co., at 500 to 530 East Front street, Cincinnati, was slightly damaged by fire recently. The loss was about $2,500 and was confined mostly to the shipping office, chipping shed and pattern shop. It is thought that the fire originated from a spark from a salamander in one of the chipping sheds.

The entire plant of the Cincinnati Pulley Machine Co., Covington, Ky., was destroyed by fire on Feb. 7. The loss is estimated at about $50,000, of which $10,000 represents the building and $40,000 the machinery and other equipment. The fire originated in the main machine shop from an unknown origin, and had gained such headway when discovered that it could not be checked. The company is owned by Hey & Patterson, a Cincinnati firm, and the building belonged to the Kenton Foundry Co., formerly of Covington, Ky.